GENERAL DISCUSSION

The starting point of the present research was to link theories and empirical evidence on lifespan development with the research on personal goals and motivational forces. In this vein, my dissertation studies approached the concept of personal goal orientation from a developmental perspective to examine its role for successful developmental regulation as well as to explore the underlying mechanisms of age-related differences in goal orientation. Specifically, the central research questions were if individuals adapt to the increasingly less positive ratio of developmental gains to losses with respect to resources throughout their lives and how they successfully influence their own developmental trajectories within biological, social, and personal constraints by selecting age-appropriate personal goals. Lifespan developmental propositions on the dynamic life-long interplay of gains and losses (P. B. Baltes, 1987, 1997; Brandtstädter, 1986; Labouvie-Vief, 1980, 1982) and the action-theoretical conceptualization of the *SOC-Model* (Freund & Baltes, 2000) served as the main theoretical framework to approach these questions. The action-theoretical conceptualization of the *SOC-Theory* proposes three developmental processes—selection, optimization, and compensation—that play a central role in adaptive life-management. The model suggests that the selection of goals can generate goal-related resources and give direction to individual development. Moreover, the investment of goal-related effort and resources (i.e., optimization or, in the case of antecedent or actual loss of goal-relevant resources, compensation) influences the individual life course in aspired directions.

Approaching the concept of goal orientation from a developmental perspective suggested to distinguish between three dimensions of goal orientation within the selection principle: *growth goal orientation* as directing goals toward growth aspects and enhancement of functioning, *maintenance goal orientation* as focusing goals on maintaining one's functional status, and *prevention of loss goal orientation* as aiming goals at the avoidance of resource-loss. This distinction was regarded as necessary to explore and understand how individuals at various ages influence their life trajectories and adapt to changes in goal-related resources throughout their lives.

Taken together, the dissertation demonstrated that personal goal orientation constitutes a relevant goal characteristic that describes differences in the motivational orientation of people in young and late adulthood. The studies provided evidence for a shift from a primary orientation toward striving for gains early in life to a primary orientation toward maintenance and avoidance of losses with advancing age. This finding supports the view on life-long development as a motivational shift in goal orientation that occurs in interaction with age-related changes in internal and external goal-related means and resources (cf. Brandtstädter, 1998, 1999).

Goal orientation was differentially related to general subjective well-being in younger and older adults. These age-differential associations can be interpreted in the sense that not all

expressions of selection are equally adaptive in all phases of life. It strengthens the view that the shift in motivational orientation from growth to maintenance and prevention of loss is a functional mechanism of the individual to adapt to changes in biological, social, and personal constraints and thus constitutes one aspect of adaptive development.

Finally, the role of expected resource demands as one of the underlying factors of the age-group differences in goal orientation was supported. When growth or maintenance-prevention of loss goals were described as demanding equal amounts of resources, younger adults primarily selected goals directed at improvement of functions, whereas older adults tended to more strongly focus on maintenance and loss-avoidance. When characterizing growth goals as requiring more resources than maintenance-prevention of loss goals—and thus making individuals explicitly aware of threatening losses when pursuing growth goals—both age groups showed a primary orientation toward maintaining their status quo and avoiding losses. This finding suggests that flexibly adjusting one's goal orientation appears to be a function of the awareness of resources necessary for goal attainment.

The general discussion combines the central results of all four studies. It is organized around discussing the three central research questions of the dissertation. The first part focuses on the age-group differences in goal orientation. It interprets the findings on expected resource demands of goals as potentially underlying factors for the age-group differences, in addition to several other mechanisms such as critical life events, subjective expectation about developmental change and personal control, and age-graded changes in future time perspective. The second part discusses the age-differential associations between goal orientation and adaptive development. It links the motivational shift in goal orientation to processes of loss-based selection, flexible goal adjustment and the idea of regulatory fit. Furthermore, it suggests to understand the motivational shift from growth to maintenance and prevention of loss as successful mastery of a meta-developmental task. Each part begins with a brief general summary of the main results.[71] Then I offer interpretations of the findings, including a discussion of the strengths and limitations of the studies as well as an outlook on future research. Following these two central parts, I highlight the successful synthesis between lifespan developmental and action perspectives in the present dissertation and outline strengths and limitations of the multi-method design. Then, I briefly suggest possible extensions of the multi-method design in future research. The general discussion ends by a conclusion that links the main outcomes to the introductory theoretical considerations.

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[71] For a detailed summary of the results of each study, see also the respective sections on summary and short discussion of the findings at the end of each study in the empirical part of this dissertation.

From a Primary Orientation Toward Growth in Young Adulthood to an Increase in Orientation Toward Maintenance and Prevention of Loss in Old Age

The present dissertation found converging evidence on age-related differences in personal goal orientation across four independent samples, across various goal domains, and across the two assessment methods of self-report (Studies 1 and 2) and goal selection behavior (Studies 3a and 3b). On average, growth was the primary goal orientation for younger adults across different domains and in the specific contexts of cognitive and physical functioning. With higher age, the focus on maintaining functioning and counteracting losses was more frequent. Studies 2 and 3b demonstrated the expected primary goal orientation toward maintenance and loss-prevention in older adults, whereas in Studies 1 and 3a older adults equally focused on growth and maintenance or loss-avoidance. This result suggests that a focus on growth remains important in old age. The age-related differences held both when conceptualizing goal orientation as comprising the three theoretically grounded dimensions of growth, maintenance, and prevention of loss (Study 1) and when defining it more parsimoniously as a two-dimensional construct comprising growth vs. maintenance–prevention of loss (Studies 2, 3a, and 3b).

There were some inconsistent findings with respect to age-group differences in goal orientation of the two specific domains of cognitive and physical functioning across the four studies. Study 1 showed more pronounced age-associated differences in goal orientation of cognitive opposed to physical goals. Study 2 found no differences between the two functional domains. Studies 3a and 3b, finally, suggested that the age-group differences were stronger for the physical than the cognitive domain. Some potential explanations of these mixed results have been presented earlier such as differences in the importance of the respective goal domains or personal control over and feeling of competence with respect to the specific cognitive and physical tasks (see pp. 152–153). Further research, however, is needed to solve this inconsistent pattern. Even though the lifespan trajectories of both cognitive and physical functioning are comparably characterized by strong decrements in late life (for an overview, see P. B. Baltes & Smith, 2003; Freund & Riediger, 2001), assessment of actual gain and loss experiences in the cognitive and physical domain as well as information on subjective theories about developmental trajectories with respect to growth, maintenance, and prevention of loss in these specific contexts would be helpful to better understand these results.

Exploring various life domains separately in the context of Study 1, the dissertation showed that in the life domains of friends and acquaintances, leisure, and politics and world issues younger and older adults did not differ in their motivational orientation. Taking the lifespan proposals of multidimensionality and multidirectionality into consideration allows the assumption that characteristic features of specific goal domains play a role in explaining why

there were no age-group differences in some domains. Age-related changes in the ratio of developmental gains to losses with respect to resources vary between the different life domains (cf. P. B. Baltes, 1987, 1997; P. B. Baltes & Smith, 2003). In domains in which gains outweigh losses across life, people may possess the necessary resources to attain their goals and therefore rather select goals that are oriented toward improvement and growth. The more losses a person experiences in a specific domain, however, the more this person will focus on maintaining his or her functional levels and on avoiding further losses. This should be true for younger and older adults. Unfortunately, information on subjective beliefs about developmental growth or actual experience of differential gains and losses with respect to the different life domains were not assessed in the present context. Future research should add this piece of information.

Moreover, as discussed earlier, the assumption that the three life domains of friends and acquaintances, leisure, and politics and world issues are not necessarily characterized by increasingly negative changes of goal-related resources but also offer potentials for growth until late in life helps to explain why younger and older adults did not differ in their goal orientation in these specific life contexts. The findings can also be linked to research in the context of developmental tasks and their role for influencing the selection of age-appropriate goals (cf. Nurmi, 1992). Throughout the different phases of life, developmental tasks refer to the domains of friends and acquaintances, leisure, and politics and world issues. These life contexts may not change in importance throughout life. Given this relevance as well as assuming that people at different ages have the necessary resources to pursue their goals in these domains can explain why younger and older adults equally focused on growth, maintenance, and prevention of loss.

Study 1 detected high test–retest stabilities of personal goal orientation over the two-week time interval. This finding suggests that goal orientation remains stable over short periods of time and may thus imply dispositional, situation-unspecific facets. Findings in the context of Studies 3a and 3b, however, supported the assumption that differential information on expected demands of resources to pursue a goal influenced behavioral preference for goal orientation. This can be interpreted in the sense that goal orientation, as conceptualized in the present context, is also malleable and affected by situational factors such as task- or goal-specific information. The assumption that goal orientation has both chronically accessible and momentary aspects is in line with propositions by *Regulatory Focus Theory*. Higgins and Silberman (1998), for instance, suggest that promotion or prevention orientation is acquired early in life and constitutes a relatively stable person characteristic. At the same time, they argue that situational cues (e.g., priming, task-framing) can change a person's regulatory focus.

The following sections offer several interpretations for the motivational shift from growth to maintenance and prevention of loss across life. These explanations refer to objective as well

as subjectively perceived age-related changes in external and internal resources. I first discuss to the role of age-graded changes in goal-related resources and expected resource demands as well as the occurrence of specific life events as underlying factors. Next, the role of subjective beliefs about developmental trajectories, age-related social expectations and the negative aging stereotype as well as lowered perceptions of personal control over life events is presented. Then, I suggest age-group differences in future time perspective as additional mechanism. Finally, I offer interpretations on why goal orientation toward growth remains salient in old age.

The Shift in Personal Goal Orientation Reflects Age-Graded Changes in Goal-Related Resources and Expected Resource Demands

The obtained results on age-group differences in personal goal orientation toward growth, maintenance, and prevention of loss are in line with developmental theories that propose a shift in the proportion of resource gains to losses throughout life such as *SOC-Theory* (P. B. Baltes, 1997; P. B. Baltes & Baltes, 1990; Freund & Baltes, 2000), the *Dual-Process Model of Assimilative and Accommodative Mode of Coping* (Brandtstädter, 1986; Brandtstädter & Renner, 1990), and *OPS-Theory* (J. Heckhausen & Schulz, 1995). They are also in accord with earlier empirical results on age-related differences in motivational orientation (e.g., Cross & Markus, 1991; Freund, 2002; J. Heckhausen, 1997; Nurmi, Pulliainen, & Salmela-Aro, 1992; Ogilvie & Rose, 1995; Ogilvie et al., 2001).

As already proposed in the theoretical part of this dissertation, one way to understand the age-group differences in goal orientation is in terms of motivational changes that occur in interaction with age-related changes in internal and external goal-related resources (cf. P. B. Baltes, 1987, 1997; Brandtstädter, 1998; Brandtstädter, Wentura, & Greve, 1993). Young adulthood is typically characterized by high developmental reserve capacities and by an outweigh of developmental gains. It primarily provides environments that offer maximum access to resources and favor acquisition of skills and improvement of functions. This explains why younger adults' primary motivation is toward growth. With advancing age the prevalence of losses in everyday experiences increases. The person experiences as well as expects fewer gains and more losses. Cognitive functioning as well as health status, for example, decline (cf. P. B. Baltes & Smith, 2003; Cleary et al., 2004; Freund & Riediger, 2001). Thus, advancing age increases the salience of resource limitations and makes it more and more necessary and beneficial to invest one's resources "economically" into maintenance and prevention of loss instead of ambitiously striving for gains (P. B. Baltes, 1987, 1997; Brandtstädter, 1986; Staudinger et al., 1995; Steverink, Lindenberg, & Ormel, 1998). This then favors a focus on maintaining one's status quo and preventing further losses. The present data can be understood

in the sense that older adults respond to a more constrained developmental ecology than younger adults and that individuals adapt their motivational orientation to the changing opportunities and constraints they encounter during their everyday life.

In addition, as compared to younger persons, older adults may feel that they have already achieved enough in most (however not all) life domains in terms of gathering resources and skills. In this sense, the "having been" becomes more important than the "becoming" (Raynor, 1982; Raynor & Entin, 1983). The primary aim in later life, therefore, is to keep what one has gained earlier. In contrast, younger adults may need to build up their potentials before they can invest into conserving them (cf. Freund & Ebner, in press). A primary goal orientation toward growth allows younger adults to generate new resources and to improve functioning, which is crucially important in their phase of life. In this sense, the motivational shift in goal orientation across life can be understood as opening up opportunities for improvement in young adulthood, whereas it helps to overcome and to deal with environmental challenges in old age.

Experimentally manipulating expected resource demands of growth and maintenance–prevention of loss goals in the present context specifically supported the role of expected resource demands as one of the mechanisms underlying the differences in goal orientation of preference-choice behavior in early and late adulthood. Studies 3a and 3b showed that, when making the higher resource demands of pursuing a growth-oriented goal rather than a goal oriented toward maintenance and prevention of loss more salient, younger and older adults showed a primary orientation toward maintaining their functional level and counteracting losses. This finding suggests that, due to limited resources and experience of loss in late life, older adults are chronically aware of threatening resource losses. Moreover, as older adults have fewer resources, they may invest them more safely into maintenance and loss-prevention than into growth. Younger adults, in contrast, typically have access to sufficient resources. They are primarily motivated to maximize their skills and may not be constantly aware of resource limitations and threatening losses. Making younger adults explicitly aware of threatening losses with respect to specific goal-relevant resources, however, influenced their behavioral preference for goal orientation in the direction of maintenance and loss-regulation. In this sense, under the condition of limited resources and under threat of further resource loss, investing resources into maintenance and loss-prevention rather than into growth seems to be the safer way.

One could also interpret the results in the way that when maintenance–prevention of loss goals are described as requiring less resource demands they may also be perceived as less difficult and more controllable. Younger and older adults may think that they are more successful in attaining less difficult goals which may explain their behavioral preference for goal

orientation toward maintenance–prevention of loss, when goals oriented toward growth are described as more demanding than maintenance–prevention of loss goals.

Looking specifically at the instructions used to experimentally manipulate expected resource demands (see Boxes C1 and C2 in Appendix C) suggests an additional explanation. Younger adults' behavioral preference for goal orientation was influenced in favor of selecting maintenance–prevention of loss goals when growth goals were described as requiring more resources than maintenance–prevention of loss goals (unequal expected resource demands). In this condition, the growth approach to the tasks clearly implied a loss, and in this sense was loss-framed. Taking this into account, the results of the present dissertation are in line with the idea of the primacy of loss-aversion as suggested in the context of *Prospect Theory* and *COR-Theory*. The primary of loss aversion assumes that individuals are strongly loss-aversive and decide against losing resources, especially so when losses are explicitly pointed out to them. This interpretation would suggest that, especially in challenging and loss-threatening situations, younger adults are primarily loss-aversive (and not primarily growth-oriented).

As Studies 3a and 3b adopted a between-subjects design, one cannot conclude from these data that making people aware of expected resource demands of growth opposed to maintenance–prevention of loss goals *changed* a person's behavioral goal orientation. That is, differences did not represent intraindividual change. However, the findings seem to suggest that situation- or task-specific information, such as on equal vs. unequal expected resource demands of goals, influenced behavioral preference for goal orientation. The way personal goal orientation was conceptualized across the four studies thus implied both malleable, short-term, task- and situation-specific as well as more general dispositional person components. Future studies should aim to further explore the relationship between the two types of variability in personal goal orientation, namely interindividual differences and intraindividual change.

Furthermore, future studies could investigate the role of resources as underlying the differences in goal orientation in life contexts that showed no age-related differences in goal orientation such as friends and acquaintances or leisure. Moreover, manipulating losses similar to the research conducted by Freund (2002) or actually manipulating task- or goal-specific resources as was done in the study by K. Z. H. Li et al. (2001), instead of manipulating the awareness of expected resource demands of goals, would allow the test of effects of actual resource constraints on selecting growth, maintenance, or prevention of loss goals in younger and older adults. Finally, future studies could examine whether it is possible to influence older adults' goal selection behavior in favor of selecting growth goals over maintenance and prevention of loss goals. By experimental instruction, growth goals could be described as requiring less goal-related resources than maintenance–prevention of loss goals. Or participants

could be informed that they have an endless amount of resources at hand for pursuing goals with different goal orientations. Under these unlimited-resource conditions, I would expect both age groups to show a primary orientation toward growth.

Critical Life Events May Change Personal Goal Orientation

In addition to age-correlated factors of developmental change, significant life events may play a crucial role to explain differences in personal goal orientation of younger and older adults (cf. Bandura, 1982; Brim & Ryff, 1980; Filipp, 1990). Normative as well as non-normative life events and transitions such as chance encounters with specific people, bereavement, challenging job opportunities, retirement, or relocation of homes can be discussed as factors underlying the motivational shift from growth to maintenace and prevention of loss across the lifespan.

Critical life events can be described as organizing principles for change and development and as indicators of objective life circumstances (Filipp, 1990; Hultsch & Plemons, 1979). In line with the idea of lifespan contextualism (P. B. Baltes et al., 1980), critical life events are seen as embedded into biological, social, and personal contexts. That is, they can refer to biological or customary social events, unpredictable occurrences in the physical world, or irregular life events such as career changes, divorce, migration, accidents, and illnesses (cf. Brim & Ryff, 1980; Filipp, 1990). They imply subjective and objective, gain- and loss-related, controllable and uncontrollable, normative or non-normative[72], probable and less probable, or stressful and less stressful aspects (cf. Hultsch & Plemons, 1979). Examples of biological events are developmental changes in the endocrine system or in the brain and central nervous system. Social events can refer to various different life contexts such as family, work, or friendship. They can be customary in a given society such as marriage or starting a family. They can also be patterned by major social events that are noncustomary in a specific society. Examples for these deviant or unregulated, possibly unintended acts are crimes against a person or car accidents. Finally, the physical world provides many events for a person such as the rotation of the seasons and also highly unpredicatable events such as earthquakes. The physical events take their place along with social and biological.

In that they can affect the direction life takes, life events play a role in regulating the nature of developmental change (Brim & Ryff, 1980; Hultsch & Plemons, 1979). They help to explain intraindividual change as well as interindividual differences in change over the lifespan. Especially when embedding the concept of critical life events into a lifespan context, the

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[72] And in this sense "on-time" and "off-time" (cf. Neugarten, 1968).

accumulation of a great variety of successive events to be faced as time goes by becomes crucial for understanding development.

Early and late life can differ in terms of the occurrence of specific life events such as job opportunities, the loss of a partner, or moving into an old people's home. Life events or transitions may influence a person's motivational orientation in that they can bring about gains or losses and can impact on normative beliefs or on a person's perception of what to further strive for or what to protect from losses. For example, when a person experiences the loss of a loved partner or when an accident brings about loss of functional capacity the person may shift from a goal orientation toward growth to maintenance and prevention of loss, relatively independent of age. A young athlete who just had a sports accident might rather focus on recovering and regaining her physical fitness than trying to win the next championship. Or a senior scientist who just received an award for his scientific contributions might rather think about writing a new book or conducting additional studies to deepen his knowledge and increase his expertise instead of thinking about retirement and discontinuing his scientific career.

The developmental consequences of critical life events and how individuals perceive and manage them is also a function of individual life experience and the specific life phase in which events occur. Moreover, how much control a person feels to have over life events and their management as well as how predictable they are plays a major role. To examine to what degree the differences in the occurrence of most typical life events and the experience of these in different phases of life underlie age-related differences in goal orientation would be a challenging project for future research. It would be interesting to explore at what specific point in life (related to chronological age or specific life events, alternatively) the motivational shift from growth to maintenance and prevention of loss begins. Does this shift start, when adults start experiencing their first declines with respect to resources and or right at the time when retirement starts? To explore these questions, an age-continuous sample would be needed that also covers middle adulthood in addition to its early and late stages. Adopting an event-related approach would lead to a better understanding of the role of critical life events for the shift from growth to maintenance and prevention of loss over the lifespan.

In addition to normative and non-normative life events as facets of contextual embeddedness of development, factors of socialization and social expectation may serve as explanations for age-related differences in goal orientation (Bandura, 1982; Brim & Ryff, 1980; Filipp, 1990). In this vein, the next section speculates on the role of subjective theories about lifespan changes, awareness of potentials for growth, and perceptions of personal control for shifting one's motivation from growth toward maintenance and prevention of loss.

Subjective Theories About Developmental Trajectories: Reduced Awareness of Potentials for Developmental Growth and Lowered Perceptions of Personal Control Over Development

Aging-related challenges are characterized by increasing and ultimately inescapable constraints in functioning and losses in the potential for attaining growth. This process is particularly pronounced in advanced old age (cf. P. B. Baltes & Smith, 2003). However, it is not only the actual experience but also the subjective awareness of growth potentials and control over personal development, at least in some areas of life, that negatively change with advancing age (J. Heckhausen & Baltes, 1991). Thus, subjective beliefs about lifespan changes reflect theoretical propositions on age-related changes in the ratio of developmental gains to losses.

As reported earlier, J. Heckhausen et al. (1989) demonstrated that young, middle-aged, and older adults expect multidirectional, that is desirable as well as undesirable, change to begin or at least continue at all phases of the adult lifespan. That is, expectations about gains and losses coexist throughout life. In addition, there is an age-related shift in expected developmental change from a predominance of gains in early adulthood to increasing losses in old age. Changes in late adulthood are associated with losses in controllability, reduced potential for growth and recovery, and increased constraints on the possibilities of adopting alternative life pathways (P. B. Baltes & Smith, 2003; J. Heckhausen, 1997; J. Heckhausen et al., 1989). These findings are in line with evidence on the negative aging stereotype that show that older adults are perceived as more negative than younger adults by younger and older respondents (Brewer et al., 1981; Hummert et al., 2002; Kite & Johnson, 1988; Perdue & Gurtman, 1990). These results suggest that older adults are aware of the constraints and aging-related threats and show reduced optimism about the probability of goal achievement (cf. Lachman, 1991; Nurmi et al., 1992).

The beliefs about increasing loss with advancing age could give rise to changes in the preferred motivational orientation. The results on age-related differences in goal orientation of the present dissertation can be interpreted in the sense that in keeping with normative conceptions about the increasing risk of losses, older adults primarily focus on avoiding age-related decline, whereas younger adults orient toward improvement of their functional capacities. In this sense, older adults do not seem to deny aging-related losses but acknowledge the constraints. This does not lead to lower life satisfaction but rather seems adaptive.

Pilot work conducted in the context of this dissertation on age-graded social expectations with respect to goal orientation was in line with these ideas. Twenty-eight younger (M = 24.6 years, SD = 2.7) and twenty-four older adults (M = 75.2 years, SD = 5.1) were asked to evaluate the goal orientation for their own as well as the respective other age group in terms of goals in 12 different life domains (e.g., health and well-being, education, work, and work-related

activities). Results showed that the age-normative beliefs reflected age-related differences in goal orientation (Wilks' λ = .24, $F_{(1,\,50)}$ = 159.1, p < .05, η^2 = .76). Both age groups rated growth as the primary goal orientation in young adulthood and maintenance–prevention of loss as the primary orientation later in life (see Figure 12).
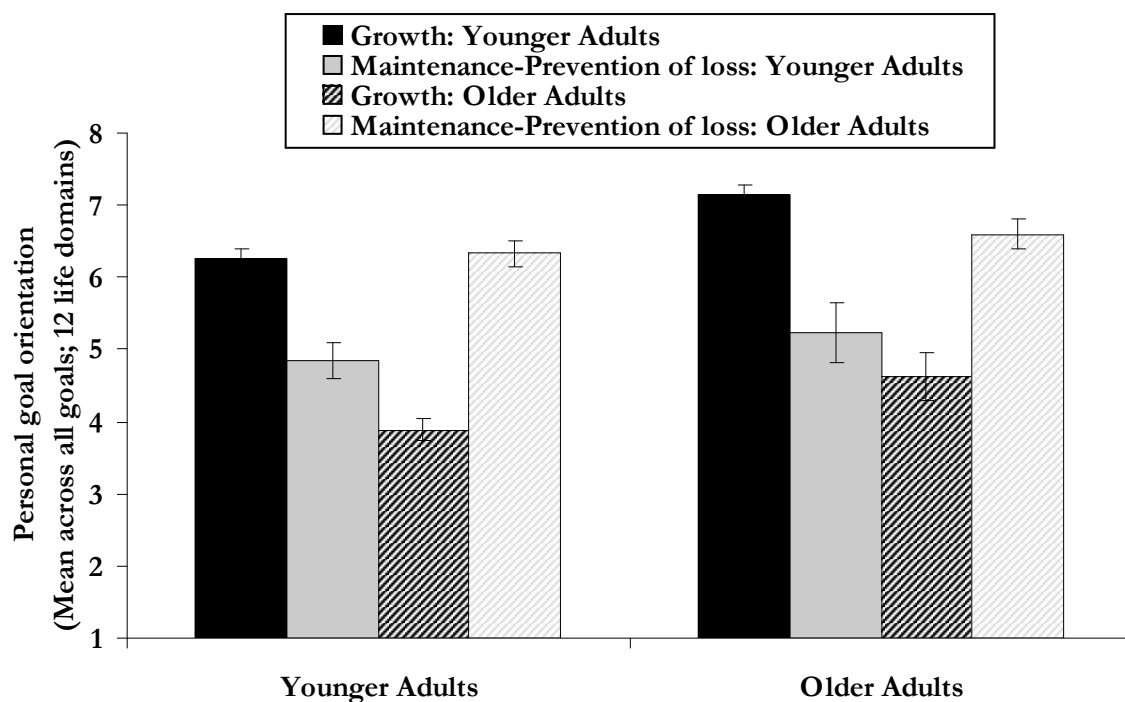

Figure 12. Age-graded social expectations with respect to personal goal orientation

The differences in the motivational orientation of younger and older adults can also be discussed in the context of evidence on decreased perceptions of personal control over development in old age. The concept of personal control is revealed as highly relevant in research on lifespan development and aging (cf. M. M. Baltes & Baltes, 1986). Perceived control can be defined as the feeling that one can influence what happens in one's life. This includes beliefs and expectations about the extent to which one's actions can bring about desired outcomes (Lachman & Prenda Firth, 2004). Two main sources of control can be distinguished: one's own efficacy (i.e., internal control or personal mastery), and the responsiveness of the environment and other people (i.e., external control or perceived constraints; Bandura, 1997).

Empirical evidence demonstrated that having a sense of personal control over outcomes in key life domains helps one to negotiate challenges and demands and to minimize the negative consequences of declines and losses associated with aging (M. M. Baltes & Baltes, 1986; Bandura, 1997; Brandtstädter & Renner, 1990; Brim, 1992; Lachman & Prenda Firth, 2004). The elderly, when compared to the young, have stronger external control beliefs and lowered

internal control perceptions in domains such as intellectual functioning and health (Brandtstädter, 1989; Lachman, 1986, 1991). Nurmi et al. (1992), furthermore, found increasingly external control ascriptions in older adults with respect to personal goals.

One could assume that when the developmental challenge is characterized by a low potential for personal control, as is often the case in old age, ambitiously striving for gains and growth goals becomes dysfunctional because these goals would not be attained. Therefore the reduced perception of internal control and increased awareness of external control help to understand why older adults shift their motivational orientation away from growth and improvement and rather direct it toward regulation of loss and maintenance.

Additionally, beliefs about when peak expression of performance in various functional domains is to be expected may play a role in explaining the motivational shift from early to late adulthood. One can assume that when the maximum level of functioning is reached and decline starts loss-avoidance becomes important. Subjective lifespan trajectories as well as subjective theories about onset of peak performance as well as decline and loss in functioning are important pieces of information that should be assessed in future research.

Finally, linking the findings of my dissertation to the field of age-related differences in judgment and decision-making offers another explanation. Kovalchik et al. (2003) found that older adults are not overconfident in judging their knowledge and its limitations. Based on these findings one could argue that older adults, with their longer life experience, may have more experience about what is manageable and are more likely to evaluate realistically which goals they can successfully achieve with the limited resources and competencies they possess. Alternatively, one can also argue that older adults are more cautious and timid because they realize that they have fewer resources and time at hand. Therefore, they focus on maintenance and prevention of loss rather than trying to achieve growth goals, potentially unsuccessfully. Future research will have to clarify how risk aversion and risk-seeking tendencies are associated with goal orientation toward growth, maintenance, and prevention of loss. It is possible that risk aversion and goal orientation toward prevention of loss are linked as they focus on negative outcomes, whereas risk-seeking may be more strongly directed at gains and functional improvement and thus be linked to growth goal orientation.

Age-Graded Changes in Future Time Perspective Play a Role in Explaining Age-Related Differences in Personal Goal Orientation

Another speculation takes future time left in life or nearness to death into account to explain the motivational shift from growth to maintenance and prevention of loss over the lifespan. *Socioemotional Selectivity Theory* (Carstensen, 1993, 1995; Carstensen, Isaacowitz, & Charles, 1999)

puts forward the notion that perceptions of remaining time in life determine the priority of specific goals, and that setting goals in congruence with one's time perspective is adaptive. The research in this context shows that older adults perceive their future time frame as less extended than younger adults do (Carstensen et al., 1999; Fung, Carstensen, & Lutz, 1999; F. R. Lang & Carstensen, 2002). As middle-aged and older adults' time perspective shifts from "years since birth" to "time left to live" (Kastenbaum, 1961, 1966; Neugarten, 1973; Raynor, 1981) they may no longer see the future as being full of limitless opportunities for exploration as may be the case for younger adults. As shorter time frames also mean that not all options are still open (cf. Raynor & Entin, 1983) and future time becomes a scarce and valuable resource for older adults (Brandtstädter & Rothermund, 2003), investing more and more time and effort in order to improve functioning is not a rational strategy with advancing age. This explains why older adults increasingly focus on maintaining their functions and prevention of losses. Having a longer future time perspective, or at least not being aware of the restrictedness of time left in life, younger adults may be more willing to invest into accumulating resources and promoting gains.

Lens and Gailly (1980) reported that the frequency of goals relating to the near future increases, whereas the frequency of goals for the distant future decreases in late compared to early adulthood. Being aware of future time constraints, older adults may chronically adopt a shorter future time frame.[73] The achievement of longer-term goals becomes relatively unrealistic and may therefore become less important. Older adults may perceive their chances to compensate for losses from investing into risky and uncertain situations as very low. In addition, since older adults have already invested more resources into goal attainment throughout their lives, they also risk more if they fail. Thus, for older adults, the risk of losing may be more severe than for younger adults, since they do not possess the necessary resources and do not have enough time left to compensate for losses.

Pennington and Roese (2003) found that the temporal proximity of goal-related events decreases younger adults' relevance of orienting their goals toward promoting gains. The focus on prevention of loss, however, remained important when events came temporally closer. Taking this finding into consideration one could argue that the shorter the expected time frame, the more the person focuses on maintenance of functioning and loss-regulation as opposed to growth. Accordingly, research on judgment and decision-making suggests that individuals are more risk averse in situations that are located in the near future (e.g., Lopes, 1981). And this would rather apply to older than to younger adults.

In addition, it has been demonstrated that with advancing age the orientation toward past events becomes stronger (Brandtstädter & Wentura, 1994; Nuttin & Grommen, 1975). This

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[73] In the present studies, however, younger and older adults did not differ in the future orientation of their goals.

stronger past orientation and reorientation toward acquired means and skills instead of a striving for gains becomes less negatively associated with life satisfaction when people grow older (Brandtstädter & Wentura, 1994).

Taken together, it seems possible that perception of restricted future time favors a goal orientation toward maintenance–prevention of loss in later life. Future studies should specifically explore the role of future time perspective on selecting goals with different goal orientations. The time to work on a task could be experimentally manipulated. The assumption would be that the longer the time frame to work on the task, the stronger the goal orientation toward growth as opposed to maintenance and loss-avoidance for younger and older adults. Alternatively, younger adults with a restricted future time perspective and actual or anticipated loss in the near future such as through physical illness could be investigated. These younger adults should show similar motivational orientations as older adults.

Growth Goal Orientation Remains Important Until Late in Life

In Studies 1 and 3a older adults did not show a primary goal orientation toward growth but equally focused on growth, maintenance, and prevention of loss. This finding that growth goal orientation remains salient until late in life may suggest that older adults more flexibly adjust their goals and goal orientation in line with the prevalent opportunity structure and their resource situation. This interpretation of a greater flexibility in older adults is supported by empirical findings in the context of the *Dual-Process Model of Assimilative and Accommodative Coping.* This research shows that older adults tend to give up unattainable goals more easily than younger adults (e.g., Brandtstädter & Renner, 1990; J. Heckhausen, 1997).

An additional explanation argues that older adults may still be used to setting goals with a growth orientation even if their actual resource situation for successfully realizing these goals has become less favorable over the years. In addition, they may still perceive many chances for positive future development and increase of potentials, especially in life domains they increasingly focus on when getting older or that remain, at least to some degree, controllable until late in life. They do not give up their focus on improvement of functions and acquisition of skills, but rather aim at maximizing their functional capacities for as long as possible. Furthermore, commercials on TV and in other media could communicate to older adults that they have to increase their activity level, health, and well-being.

J. Heckhausen and Krueger (1993) demonstrated that most adults believe that they are better off than most of their age-peers with respect to negative aging characteristics. This effect is especially pronounced in older adults, compared to younger and middle-aged adults, that is at a time when the stereotype about one's own age is very negative. This result suggests that older

adults have a positively biased view of the self with regard to age. These positively biased beliefs might explain the strong growth orientation in old age.

Another possible reason why the present studies did not consistently find a primary goal orientation toward maintenance or loss-prevention in older adults could be that the sampled older adults were not yet old enough to experience the postulated loss of resources. In addition, as participants had to be able to come to the Max Planck Institute for data collection, the present samples were positively selected in terms of cognitive and physical functioning. Taking the distinction between the third and the fourth age into consideration, the present samples comprised people in their third age who may have still had potential for gains in addition to losses. Future studies should investigate older adults (e.g., 80 years and older), namely people in their fourth age, which should be characterized by more age-associated cognitive and physical decline and increase in resource losses. These participants, however, would then need to be tested in their own homes.

Finally, lifespan developmental psychology describes developmental processes as being influenced by the historical context (P. B. Baltes, 1997; P. B. Baltes et al., 1979). Taking this into account, one could assume that cohort-differences play a role in explaining why older adults focused equally on growth, maintenance, and prevention of loss. The present findings were based on cross-sectional data of between age-group designs. Consequently, the present study does not allow a disentangling of age and cohort effects nor does it provide information on intraindividual change in goal orientation over the life course. This methodological limitation needs to be taken into consideration when interpreting the results. A cohort interpretation of the empirical patterns might take into account the fact that more than ever before younger adults are exposed to television commercials intended to prime their desires to acquire new things and goods with possible effects on their personal goal orientation. Older adults under investigation in the present context, in contrast, had been young adults in the German post-war period when their parents struggled to hold onto as many reserves as possible. Their observations of the urgency to resist losing skills and possessions such as jobs, savings, or homes may have become early-formed values that were maintained over the course of their lives (cf. Ogilvie et al., 2001). At the same time, having to rebuild and reconstruct their surroundings after the war, they might have incorporated the value of ambition and a strong growth orientation. Longitudinal data would be necessary to disentangle such age and cohort effects.

Shift in Personal Goal Orientation From Early to Late Adulthood as Mechanism of Adaptive Developmental Regulation

The present dissertation aimed to fill the gap in empirical knowledge on age-related differences in the relations between goal orientation toward growth, maintenance, and prevention of loss and subjective well-being as one outcome measure of successful development. With respect to general subjective well-being, an age-differential pattern emerged.[74] Goal orientation toward loss-prevention was negatively related to general subjective well-being in younger ages. This result is in line with studies observing that younger adults profit from a motivational orientation toward approaching positive aspects, whereas a focus on avoiding negative outcomes implies negative effects (e.g., Coats et al., 1996; Elliot & Sheldon, 1997; Elliot et al., 1997; Emmons, 1996; Friedman & Förster, 2001). One explanation for this finding is that younger adults are still in the process of acquiring new skills and expanding their potentials. They may not yet have acquired enough resources they could protect. Thus, it would be too early and even maladaptive to primarily focus on maintenance and loss-prevention in young adulthood, as this could imply the risk of missing chances to maximize resources.

As expected, this negative relationship between goal orientation toward prevention of loss and well-being did not hold for older adults. Setting goals directed at counteracting losses seems to be dysfunctional for younger but not for older adults. In addition, in old but not in young adulthood, maintenance goal orientation was positively related to general subjective well-being. This suggests that it may become functional in late life to focus one's attention on maintaining functional levels as resource losses become more and more salient. Alternatively, one could argue that older adults may just not regard maintenance and loss-prevention as negative but rather as positive. Maintenance could be the more positive version of loss-prevention, which would explain the positive relation between maintenance and general subjective well-being, while this positive relation did not exist for prevention of loss. In this sense, maintaining one's functional level could already be seen as a great achievement in old age and may be even redefined as a gain.

Growth goal orientation and general subjective well-being, finally, were unrelated in both age groups. To explain this unexpected result, one could maintain that it is normative and in line with major developmental tasks for younger adults to focus on improvement of functioning and

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[74] Unexpectedly, this dissertation did not provide evidence for age-differential relations between goal orientation and goal-specific satisfaction. That is, younger and older adults did not report differential relations between goal orientation and satisfaction with goal progress or goal attainment consistently across Studies 1 and 2. This suggests that satisfaction with goal attainment and goal progress did not serve as factors that explain the different associations between goal orientation and general subjective well-being in younger and older adults. Why the expected age-related differences with respect to goal satisfaction did not emerge needs to be further explored in future research.

on acquiring skills. Orienting one's goals toward loss-prevention in young age, in contrast, could be regarded as rather age-untypical. Behaving in a way that contradicts age-graded normative expectations could then increase the difficulty to achieve one's goals, as these types of goals might not be supported by others or require more self-regulatory processes and thus be negatively related to life satisfaction (cf. Wrosch & Freund, 2001).

Similarly, one could assume that maintenance and prevention of loss may trigger negative evaluations of one's achievement status and favor anxiety, especially so in young adulthood. Younger adults may have an implicit theory that pursuing maintenance and prevention of loss goals is negative and undesirable in young adulthood. A strong orientation toward prevention of loss early in life might therefore trigger negative thoughts and fear, which might in turn lead to activation of negative information and lower ratings of well-being. Furthermore, goal orientation toward prevention of loss may increase the sensitivity to, and accessibility of, negative information, as well as bias the search for negatively valenced information. This then could lead to negative appraisals and perceptions of oneself and one's own competence.

In line with Hobfoll (1989, 1998) who proposes that resource losses have a stronger impact than resource gains one could furthermore speculate that loss of resources more negatively influences well-being than do resource gains. Younger adults who primarily aim at counteracting losses may have experienced more losses than younger adults with a less strong orientation toward prevention of loss. These loss experiences could then have a more negative influence on well-being than gain experiences would positively impact on well-being. Future research should assess this information on actual loss experiences in younger and older adults as an additional control variable.

In addition, a more detailed exploration of younger adults who deviate from their respective age group in terms of their associations between goal orientation and well-being would be fruitful to better understand the differential impact of goal orientation on successful aging. One example would be to investigate specific characteristics such as personality traits or functional status of younger adults who clearly profit from a primary orientation toward maintenance and prevention of loss. This would allow to explore additional factors and mechanisms that contribute to adaptive life-long development.

In general, age-related changes in the availability of goal-relevant resources, age-graded normative beliefs, and perception of future time left in life once more can serve as explanations for the age-differential associations between the three dimensions of personal goal orientation and general subjective well-being. This is the case as all these factors can change objective as well as subjectively perceived opportunity structures for goal attainment in the different life phases. Younger adults may possess the necessary goal-related resources to realize enhancement

of functions, while older adults are confronted with limited amounts and restricted access to resources (P. B. Baltes, 1997; Brandtstädter, 1998). As a consequence, opportunity structures that favor gain in early life could represent challenge and threat in old age. With advanced age, it then becomes adaptive to select and pursue goals one possesses the necessary resources and that are socially supported and to focus on maintaining the functional level instead of ambitiously setting and pursuing (unattainable) growth goals and running the risk of depleting the few remaining resources one has (P. B. Baltes & Baltes, 1990; Brandtstädter & Greve, 1994; Brandtstädter & Rothermund, 1994; Freund et al., 1999; J. Heckhausen & Schulz, 1995). Given the constrained potential for future improvement, it becomes functional that older adults feel more satisfied with maintaining their status quo than younger adults.

The following sections first speculate on the role of loss-based selection, flexible goal adjustment, and regulatory fit as mechanisms that play a role in explaining the age-differential relations between goal orientation and general subjective well-being. I then describe the age-related shift from growth to maintenance and prevention of loss as a mechanism to adapt to age-related changes in the person–environment interaction and as successful mastery of a meta-developmental task.

Loss-Based Selection, Flexible Goal Adjustment, and Regulatory Fit as Underlying Mechanisms

Linking the present results to the research on life investment and investment selectivity (e.g., Staudinger & Fleeson, 1996) allows speculation on why the shift in personal goal orientation constitutes an adaptive mechanism of developmental regulation. Staudinger and Freund (1998), for instance, demonstrated that with advancing age, the number of domains into which people invest resources declines. Furthermore, focusing on few life domains proved particularly adaptive for older people who were confronted with resource constraints. Selection of few domains on which to focus one's resources, however, also has costs because selecting domains implies that alternative possibilities cannot be chosen. Alternatively, it might also be adaptive to reframe and reorient one's personal goals (such as into the direction of maintenance and loss-prevention) instead of focusing on few goals only and thereby dropping others. Thus, reorientation of goals instead of disengaging from originally set goals might in some cases even be more adaptive as it reduces the risk of being "overselective", thus precluding opportunities and alternatives that could lie within one's potential. Selecting too early or too few goals can negatively impact on one's flexibility and in turn negatively influence developmental growth (J. Heckhausen, 1999).

Referring to *SOC-Theory*, the motivational shift from growth to maintenance and prevention of loss can be linked to the strategy of loss-based selection. That is, older adults, as

they experience more and more losses and realize that they cannot attain their growth-oriented goals any longer may "transform" and reorient their goals toward maintenance and avoidance of losses. In this sense, motivational reorientation constitutes a strategy to successfully adapt to age-related changes in resources and to preserve a sense of autonomy and well-being.

Alternatively, one could argue that shifting one's goal orientation across the lifespan can be regarded as an indication of greater flexibility to adjust one's goal standard to an attainable level. In this sense, flexibility of goal adjustment does not refer to the giving up of a goal but rather implies lowering aspirations for a given goal. This implies that growth-oriented goals represent higher-standard goals, whereas goals directed at maintenance of status quo and prevention of loss constitute lower-standard goals. This assumption, of course, is debatable.

The *Dual-Process Model of Assimilative and Accommodative Coping* and *OPS-Theory* suggest that the likelihood to being confronted with unobtainable or permanently blocked goals increases with advancing age as availability and adaptive use of goal-related resources decline. It has been shown that older people become more flexible with respect to their goals (Brandtstädter & Greve, 1994; Brandtstädter & Renner, 1990; J. Heckhausen & Schulz, 1995; Wrosch & Heckhausen, 1999). They more easily abandon goals that are clearly unattainable than younger adults do and rather redirect their resources to more realistic goals that are in accordance with available resources. These findings are in line with the present results that older adults reported more loss-based selection, a stronger tendency to apply preventive coping strategies, were more flexible in pursuing their goals, and reported a stronger goal orientation toward maintenance and prevention of loss than did younger adults. Moreover, research has shown that under conditions of reduced control, disengagement from blocked goals, rather than tenacious persistence in goal pursuit, increases and can promote well-being. Several studies suggest that achievable goals should make goal progress more likely. Both theoretical propositions and empirical evidence support the assumption that goal progress is associated with psychological well-being (Bagozzi, Baumgartner, & Pieters, 1998; Brunstein & Maier, 1996; Carver & Scheier, 1990; E. Diener, 1984; Frijda, 1986; Oatley & Johnson-Laird, 1987). In this sense, adjustment of goal standards to an achievable level and rearranging priorities when confronted with resource limitations constitute ways to protect older persons' well-being and favor successful aging.

Taking these considerations into account one could argue that older individuals may adapt to increasingly salient resource limitations in later adulthood by employing available resources more effectively in the interest of their goals. This could also be one of the mechanisms that explain why older adults, on average, report similar (or even higher) levels of psychological well-being than younger adults, although they live with objectively more pronounced resource limitations (cf. Brandtstädter & Greve, 1994). In this sense, adult development is not only

characterized by developmental losses such as losing a partner or increased morbidity, but also comprises developmental gains such as life-competences (P. B. Baltes, et al., 1998; Erikson, 1959; Jung, 1933; Labouvie-Vief, 1981; Maslow, 1954; Werner, 1967). Shifting one's motivational orientation from growth to maintenance and prevention of loss in the sense of adjusting one's goal focus in accordance with available goal-related resources and opportunity structures can therefore be understood as one indicator of developmental or "psychological" growth and life-competence in late adulthood.

The present results on age-group differences in the associations between goal orientation and well-being can also be interpreted in linking them to the research on regulatory fit conducted in the context of *Regulatory Focus Theory* as well as the research on the relations between implicit motives, motive-congruent vs. motive-incongruent explicit goals, and well-being (e.g., Brunstein et al., 1998). By orienting goals toward maintenance and prevention of loss, older adults might ensure a fit or congruency between their motivational orientation, their implicit motives, and the most profitable means and opportunity structures for goal attainment. This match could, in turn, lead to "feeling right" with positive effects on overall well-being. The same should hold true for younger adults' primary orientation toward growth.

When interpreting the results, it is necessary to note that the present dissertation referred to data only covering a two-week time interval. It does not make it possible to determine the causal direction of age-differential associations between personal goal orientation and general subjective well-being. Is it goal orientation that influenced well-being or did well-being influence goal orientation? It is also possible that goal orientation and well-being were caused by other variables or that they mutually caused each other. Future studies should adopt a longitudinal research design covering several months or even years to investigate age-related differences in goal orientation and its functional impact on adaptive development. Alternatively, a strict test of the assumption that goal orientation is an antecedent of subjective well-being would require a well-controlled experiment.

Motivational Shift as Successful Mastery of a Meta-Developmental Task

This section discusses the understanding of the lifespan shift in personal goal orientation as successful mastery of a meta-developmental task. As outlined earlier, developmental tasks derive from the interplay between normative age-graded, normative history-graded, and non-normative influences. That is, they develop through the interaction of biological, social, and personal external and internal influences (cf. P. B. Baltes et al., 1980; Havighurst, 1956). The contents of some developmental tasks change over the life course. Age-related changes in the most typical developmental tasks, however, do not only reflect a shift in most salient life domains such as

from starting a family to preparing retirement and adapting to reduced income, but also a shift from focusing on improvement and achievement of positive outcomes in young adulthood (e.g., getting started in a job) to regulation of loss in old age (e.g., decreasing physical strength).

Developmental tasks can be understood as organizing principles of lifespan changes. They provide comparison standards and they can strongly influence and structure age-appropriate individual goal selection and pursuit as they provide a basis for anticipating what is possible, acceptable, and desirable at different ages (Freund & Baltes, in press; Nurmi, 1992). Developmental tasks provide a frame of reference for personal development in defining the context for opportunity structures and limitations as well as determining the optimal age to set, pursue, and achieve certain goals in life (Freund, 1997; J. Heckhausen, 1999; Wrosch & Heckhausen, 1999). Individuals select goals appropriate to a given developmental or life-course challenge. This often implies disengagement from previous goals, selection of new goals, or motivational shift to a goal standard or orientation for which opportunities are favorable and resources available. Development can be described as successful when developmental tasks are well solved over the life course. Selection and pursuit of personal goals that are age-appropriate and in accordance with developmental tasks can in itself be seen as a developmental task. Taking this into account, selection of goals with age-appropriate goal orientations can be understood as successful mastery of a meta-developmental task and thus constitute one aspect of adaptive development.

Goals in Development—Development in Goals: Linking Lifespan Developmental and Action Perspectives in Research on Personal Goal Orientation

One central purpose of my dissertation project was to join theory and empirical evidence of two lines of research, namely lifespan psychology and action perspectives to investigate the role of goal selection for development as well as to examine how personal goal orientation changes over time. This was accomplished by focusing on lifespan development as a substantive forum within which goal-related processes and behaviors operate and to use it as integrative framework to approach the concept of personal goal orientation as one characteristic of goals.

Linking the lifespan developmental and the action perspective has several advantages for both lines of research (cf. Frese & Sabini, 1985). As outlined earlier, life-long development constitutes behavior-change processes that can occur at any point in the life course from conception to death. It takes normative age-graded, normative history-graded, and non-normative developmental forces and the concept of developmental tasks into consideration to explain and describe lifespan development (cf. P. B. Baltes et al., 1980). Thus, in addition to factors associated with age-related biological and socialization processes to account for

regularities and differences in development, life history with its influences on subjective beliefs and aspirations is suggested to play a major role.

Embedding the concept of personal goals into lifespan development allows to conceptualize the individual as active agent of developmental paths in a person–environment interaction (Brandtstädter & Lerner, 1999; Ford, 1987; Freund & Baltes, 2000; Lerner & Busch-Rossnagel, 1981). In this view, development is the product of a reciprocal interaction between the individual and his or her environment in which each modifies and is modified by the other. That is, the actual course of long-term development is influenced by the individual's goals, expectations, and beliefs with regard to his or her own development (Brandtstädter, 1984a).

Lifespan development draws upon long-range experiences and future beliefs. The intentions that guide a single action may be significantly influenced by long-term goals and expectations, which in turn are the products of many individual action sequences. Whereas lifespan theory provides more long-range explanations incorporating phylogenetic and ontogenetic aspects, action theory emphasizes the immediate interaction between the individual and the context in terms of specific situational demands and the agent's current states and dispositions.

Approaching the concept of personal goal orientation from a lifespan perspective and investigating age-related differences in the selection of goals with different goal orientations, allowed to conceptualize personal goal orientation as a developmental construct that is dynamic and can change over time. This approach raised the question about the generalization of the findings on individual differences in approach–avoidance motivation and the differential effects on task performance and well-being reported in the literature. The results of the present studies suggest that the finding that a motivational orientation toward striving for gains, opposed to preventing losses, is predominant and also more functional with respect to task performance and subjective well-being (Coats et al., 1996; Elliot & Sheldon, 1997; Emmons, 1996; Roney et al., 1995) only applies to younger but not to older adults. Rather, there is a shift in goal orientation from promoting gains toward maintenance and loss-prevention from early to late adulthood. This motivational reorientation in old age appears to be one mechanism to successfully adapt to the changing ratio of resource gains to resource losses across the lifespan.

In sum, by integrating theories and empirical evidence on lifespan development and action theory the present dissertation lead to new lines of inquiry and the formulation of new hypotheses that would not have been generated within each perspective taken separately and that are relevant and enriching for both research traditions. It integrated the concept of personal goal orientation into a developmental context as well as conceptualized personal goals and goal-related processes as important components of developmental regulation. Thus, it helped to

expand the substantive focus of current research on personal goal orientation and clearly provided new insight into lifespan developmental regulation as well as personal goals and motivational forces. The aim of future studies should be to continue to combine research questions on motivation and action psychology with lifespan theory that takes social and temporal aspects into account as this offers a new window for research on motivational forces and lifespan changes.

Strengths and Limitations of the Multi-Method Approach

The present dissertation adopted a multi-method design. It comprised four studies that used independent samples of younger and older adults and varied in life contexts (i.e., goals relating to self-generated goal domains, cognitive and physical functioning goals) and types of measurement (i.e., self-report and preference-choice behavior). This multi-method approach can be seen both as a limitation as well as one of the major strengths of this research.

On the one hand, comparing evidence across samples allowed generalization of the results on age-related differences in goal orientation and prevented detecting only sample-specific phenomena. Researching multiple contexts, furthermore, enabled the comparison of different goal domains and the generalization of the findings across various life contexts. It also helped to control for characteristic features of specific life domains. Finally, using different methods and assessment levels such as behavioral measures in addition to self-report made it possible to interpret the results as stable and relatively independent from slight differences in the definitions. It aided in overcoming problems of exclusive reliance on participants' evaluation of their behavior as it additionally recorded actual goal selection behavior (cf. Schwarz et al., 1999). Even though people are able to generate a personal list of goals when asked to do so, self-reported goals may be a consequence of their own post-hoc rationalizations and explanations of their actions. Self-report requires that people are able to report about their goals, which means that the goals need to be consciously represented and introspectively accessible (Nisbett & Wilson, 1977; Wilson, 2002). Furthermore, tendencies to respond in socially desirable ways and processes of self-deception (Paulhus, 1991; Shedler et al., 1993), construed demand characteristics (Orne, 1962; Weber & Cook, 1972), or memory biases and features of the specific context (Ross, 1989; Schwarz & Strack, 1999) can bias personal reports and evaluation of goals.

The present dissertation's finding on converging evidence across methods is especially relevant when considering that minor changes in question wording, question format, or question order may profoundly influence the answers that participants provide (for reviews, see Schuman & Presser, 1981; Schwarz, 1999). Research has shown that age-related differences in

cognitive resources, memory, text comprehension, and communication can have an impact on self-report measures that makes it difficult to assess the extent to which differences in self-reports reflect age-related differences in respondents' actual attitudes or behaviors (Schwarz & Knäuper, 2000; Schwarz et al., 1999). As the present studies investigated younger and older adults, detecting converging evidence across self-reported goal orientation and behavioral preference for goal orientation seems especially important and strongly supports the existence of age-related differences in personal goal orientation. Future research could add external ratings of goal orientation by friends or acquaintances as important information to validate individual self-report and goal selection behavior (cf. Wilson, 2002).

On the other hand, the question can be raised if the different samples, age groups, and the specific definitions and methods used to assess goal orientation were fully comparable across the four studies. Does the three-dimensional construct of personal goal orientation (Study 1), for example, measure the same underlying construct as the two-dimensional concept used in Studies 2, 3a, and 3b? Do younger and older adults perceive the constructs of growth, maintenance, and prevention of loss differently? And consequently, can the obtained results of age-group differences in goal orientation really be compared across studies and age groups?

Extension of the Multi-Method Approach in Future Research

In future research the multi-method approach to the question on differences in goal orientation could be extended in various ways. In the following section I discuss three possible extensions: (1) The assessment of implicit, unconscious aspects of personal goal orientation in measuring differences in cognitive activation of goal orientation toward growth, maintenance, and prevention of loss; (2) the investigation of differences in personal goal orientation in samples varying by functional status or culture; and (3) the exploration of practical and intervention implications of the shift in personal goal orientation in referring to the context of health.

Assessment of Personal Goal Orientation on an Implicit Level

Is the motivational shift from growth to maintenance and prevention of loss throughout life intentional, controlled, and conscious? That is, are individuals consciously aware of changes occurring in their internal and external resources, and do they intentionally react to these in reorienting their motivational focus? For instance, do younger adults intentionally strive for gains because they actively want to acquire new skills and maximize their potentials? Or is this a motivational orientation that has evolved because of evolutionary advantages of accumulating many resources in young adulthood, and has become part of our behavioral repertoire that does not require conscious awareness?

The present dissertation was based on the assumption that consciously represented goals play an important role in successful life-management. On this background, the results on age-related differences in goal orientation can be interpreted as showing that older adults might consciously opt to shift their motivational focus toward loss-prevention. One could assume that they have experienced this as the more adaptive strategy. The perception of intentionally changing their motivational orientation from gains to maintenance and prevention of loss may preserve their feeling of control and well-being.

Assessing goals and goal orientation in self-report, as done in the present context, presumed that people are able to reflect upon their goals and goal orientation accurately. As outlined earlier, consciously accessible goals, however, represent only one motivational aspect influencing human action and development. The awareness and the accuracy to which people evaluate their goal orientation and their willingness to report about it might only be limited. It seems likely that some aspects of motivational processes are intentional, conscious, and controlled, whereas others function unintentionally, unconsciously, and automatically. In reaction to this, the present research adopted a multi-method approach and also assessed goal orientation in goal selection behavior to cover more implicit components of goal orientation.

Younger adults are frequently in situations that allow improvement of skills and maximization of resources, whereas older adults are much more likely to be confronted with losses in their resources that threaten their functioning. This might result in an automatic orientation toward gain in younger adults and toward loss-avoidance in older adults. Environmental stimuli that activate the concept "young," which is strongly associated with gains, might automatically lead to behavior that is oriented toward gains. Conversely, stimuli associated with "old" might automatically trigger the activation of maintenance or loss-avoidance orientation. As people are typically in social environments that are strongly characterized by their own age group, their peers might serve as cues for the automatic activation of the respective goal orientation.

In addition, reinforcement principles could play a role in establishing a chronic but potentially unconscious goal orientation. Younger adults may be more successful in attaining growth goals since they possess the respective resources. Goal attainment serves as a reward, increasing the likelihood of activating the corresponding goal orientation in the respective situation. In contrast, older adults, due to a lack of the necessary resources, might more frequently experience failure in attempts to attain growth goals. The likelihood of achieving maintenance or prevention of loss goals is much higher for older adults, which serves as a reinforcement of this kind of goal orientation. Over time, individuals may learn and automatize the goal orientation that actually more frequently leads to positive (or, in the case of avoiding a

negative outcome, negative) reinforcement (for further elaboration of these arguments see Freund & Ebner, in press).

Dominant goals can be characterized as highly accessible memory structures (e.g., Anderson, 1983). Drawing upon research in the context of the *Model of Action Phases* (e.g., Gollwitzer, 1993, 1996; Gollwitzer, Heckhausen, & Ratajczak, 1990; Gollwitzer & Moskowitz, 1996) personal goal orientation does not have to be consciously represented in order to guide attention and behavior, and the shift of goal orientation from growth toward maintenance and prevention of loss is not necessarily consciously formulated and implemented in behavior. In fact, the way goals are framed may only be partially controlled and intentional, but could also constitute an automatic aspect of self-development. One could assume that different implicit cognitive representations emerge not only as a function of different action phases, but also with respect to different goal orientations. These different mind-sets would then activate different cognitive features that facilitate the pursuit of goals with the respective goal orientation.

Adding implicit measures of personal goal orientation in future research would enable extension of the multi-method design by covering unconscious, unintentional, and uncontrolled components of motivational orientation. Future research should investigate to what degree goal orientation is represented on the level of implicit cognitive activation and should focus on exploring the degree of and the differences in accessibility and implicit cognitive activation of goal orientation toward growth, maintenance, and prevention of loss in younger and older adults. This would increase knowledge on implicit aspects of goal selection and goal pursuit and their role for successful life-management and adaptive human development.

Assessment of Differences in Personal Goal Orientation in Varying Samples

Another extension of the multi-method design in future research could imply comparisons between people that differ in their cognitive and physical functional status or with respect to their cultural socialization. This would allow to further explore underlying factors that explain individual differences in personal goal orientation.

Younger adults that are characterized by deteriorating health or prolonged mental illnesses could be compared to younger adults in favorable health conditions. Younger adults with physical or mental impairments may be more similar to older adults as both groups experience loss of functioning and resource decline in daily life. Moreover, they both may perceive their future time in life as limited. Goal orientation toward maintenance and regulation of loss compared to striving for gains and improvement may therefore be most prominent and adaptive in younger adults in unfavorable health conditions.

The *SOC-Theory* conceptualizes the processes of selection, optimization, and compensation as universal principles of developmental regulation. At the same time, however, it proposes variations in the specific phenotypic implementations with respect to the content of the processes. This implies that personal goals and goal-directed activities play a universal role in developmental regulation, but that specific contents of the selected goals and goal-directed actions can vary by culture.

Socialization and culture play an important role in the development of cognitive, affective, and motivational processes (Markus, Kitayama, & Heiman, 1996; Shweder, Goodnow, Hatano, Levine, Markus, & Miller, 1998). In addition to age-graded social expectations and norms in general cultural factors may impact on individual and age-group differences in goal orientation. Cross-cultural comparisons have shown that collectivism relative to individualism is associated with negative outcomes such as more pessimism, a preference for loss-framed information, and a greater attentiveness to negative self-relevant information (see Heine, Lehman, Markus, & Kitayama, 1999; Lee, Aaker, & Gardner, 2000).

In line with research on regulatory fit (e.g., Higgins, 1997, 2000) and congruency between goals and motives (Brunstein et al., 1998), one could assume that goals that mismatch the specific cultural emphasis are negative predictors of well-being, whereas goals that match the cultural emphasis do not serve as negative predictors (see also Kitayama, Markus, Matsumoto, & Norasakkunkit, 1997; Lee et al., 2000). Specifically approaching the question on cultural differences in approach and avoidance motivation, Elliot, Chirkov, Kim, and Sheldon (2001) found that a self-definition that relies on interdependency between individuals (as is the case in a collectivistic society) was positively related to the adoption of goals oriented toward loss-prevention. In contrast, independent self-definitions (as observed in an individualistic society where the well-being of an individual solely depends on him- or herself) were negatively related to avoidance goals. Moreover, avoidance goals were negative predictors of subjective well-being in individualistic but not in collectivistic societies.

On the basis of this empirical evidence, and drawing upon the findings of this dissertation, one could assume that the obtained age-related differences in goal orientation only hold in individualistic, but do not exist in collectivistic societies. Future research could explore whether the age-group differences also exist within collectivistic contexts. This line of research would provide insights into both the proposed culture-independent universality of the *SOC*-processes with specific emphasis on the concept of personal goal orientation and their culture-dependent phenotypic implementations.

Exploration of Practical and Intervention Implications of the Shift in Personal Goal Orientation

Does framing health-messages in terms of gains or losses have a differential effect upon health-related goal adoption and goal pursuit when implementing health programs in younger and older adults? The multi-method approach to the investigation of age-related differences in personal goal orientation could be extended in future research by exploring possible practical and intervention implications of the shift in goal orientation in the domain of health. Health-related communications such as in commercials on TV or in the newspaper can be distinguished in terms of their message framing. Gain-framed messages emphasize benefits gained, whereas loss-framed messages emphasize benefits lost (cf. Brendl, Higgins, & Lemm, 1995).

There are several studies that support higher effectiveness of loss-framed messages when individuals perceive themselves as highly vulnerable to certain health risks, as might be the case in old age, whereas gain-framed messages seem to be more effective when perceived vulnerability is low, as might be the case in early life (e.g., Block & Keller, 1995; Lee & Aaker, 2004). One could speculate that as older adults increasingly experience resource losses they might feel more vulnerable and perceive higher health risks than younger adults. As a consequence, they could show heightened vigilance and focus more on negative aspects of the situation. Loss frames, then, should be more persuasive for older adults than gain frames. In contrast, younger adults might not feel threatened so that, for them, gain frames could be more persuasive than loss frames.

Conclusion

The following general conclusions can be drawn from my studies: Lifespan development can be described as a shift in personal goal orientation that occurs in interaction with age-related changes in internal and external resources. This motivational shift from promoting gains toward maintenance and loss-prevention from early to late adulthood constitutes one mechanism to successfully adapt to the changing ratio of resource gains and losses experienced across the lifespan. Integrating the concept of personal goal orientation into a developmental context and conceptualizing goals and goal-related processes as important components of active life-management allows to combine the lifespan developmental and the action perspective. This linking of two research traditions expands our knowledge on personal goal orientation as well as povides new insights into processes of developmental regulation within given biological, social, and personal resource constraints.