Research in Human Development
Publication details, including instructions for authors and subscription information:
http://www.informaworld.com/smpp/title~content=t775653695

The Motivation-Volition Divide and Its Resolution in Action-Phase Models of Developmental Regulation

Jutta Heckhausen [a]
[a] University of California, Irvine, USA

Online Publication Date: 14 November 2007

To cite this Article Heckhausen, Jutta(2007)'The Motivation-Volition Divide and Its Resolution in Action-Phase Models of Developmental Regulation',Research in Human Development,4:3,163 — 180
To link to this Article: DOI: 10.1080/15427600701662983
URL: http://dx.doi.org/10.1080/15427600701662983

RESEARCH IN HUMAN DEVELOPMENT, *4*(3–4), 163–180

The Motivation-Volition Divide and Its Resolution in Action-Phase Models of Developmental Regulation

Jutta Heckhausen
University of California, Irvine

I discuss the long-standing divide in motivational psychology between issues of motivation (i.e., why strive for certain goals) and of volition (i.e., how to strive for chosen goals). This debate began in the 1920s between Lewin (1926) and Ach (1905, 1910) and was revived in the 1980s by Kuhl (1983) who proposed a distinction between motivation (choice of goal) and volition (pursuit of goal). Action-phase models lay out motivation and volition sequentially and are useful for investigating processes of developmental regulation across the life course. Shifts between different phases of action are salient during transitions affecting opportunities from better to worse or vice versa. Several studies have addressed phenomena of interphase adaptation of motivational mind-sets to shifting goal-related opportunities in the context of life-course transitions.

FROM WISHES TO ACTION: HETEROGENEOUS MOTIVATIONAL PROCESSES

Everybody knows that just having a wish does not make the wish happen. Wishing something is but the first step toward taking action to realize it. Before we can take action, the wish has to be transformed into a more specific goal that we can actually strive for and attain. Once we have decided for a goal, we still have no guarantee that we will take the appropriate action. One has to think only of the many New Year's resolutions that people form, only few of which are put into practice. What is needed beyond the wish and the decision for a goal (as the result of motivational consideration) is a volitional commitment that is binding

Requests for reprints should be sent to Jutta Heckhausen, Department of Psychology and Social Behavior, 3381 Social Ecology II, University of California, Irvine, Irvine, CA 92697-7085. E-mail: heckhaus@uci.edu

and specific enough to help the individual to start the relevant action and carry it through to goal attainment, even if unforeseen distractions or obstacles come in the way.

When applying this reasoning to the motivation to influence one's own development, it becomes clear that with the long-term and challenging developmental goals people strive for (e.g., career goals, family building goals), issues of volitional commitment are even more important than in other motivational contexts. Long-term developmental goals can not be pursued around the clock, 24/7, so to speak. People have to take care of other needs and the more or less profane requirements of daily living and, what is even more challenging, often pursue more than one developmental goal at the same time. Thus, phases of active goal pursuit will alternate with profane activities of daily living and with active phases of pursuing other important goals. This creates challenges for maintaining goal engagement and such self-regulatory challenges as returning to active goal pursuit after interruptions. Keeping yourself on track with promoting goal progress thus becomes a significant challenge. Therefore, conceptual models of developmental regulation are well advised to consult the wisdom of long-standing concepts in motivational psychology. This is what I attempt to do in this article by focusing on the distinction between motivational and volitional processes in human life-course-related agency.

A FORGOTTEN CONTROVERSY

At the beginning of the last century, the German psychologist Ach (1905, 1910) conceptualized motivation and volition as separate aspects of the will: "Of the two sides of the problem of the will, the present discourse shall be limited to only one, namely the *determination arising from an intention or decision*, while the first side, the formation of the intention, is not extensively studied" (Ach, 1905; H. Heckhausen, 1991). Ach (1905) measured "acts of will," as he put it, as "determining tendencies" using an ingenious experimental paradigm. Participants had to undergo extensive practice of associations between two meaningless syllabi (e.g., *bem-pok*), which created strong reaction tendencies (e.g., to respond to the first syllabus "*bem*" by uttering "*pok*"). Participants then were instructed to respond to syllabi by creating a rhyming syllabus (e.g., *bem-rem*). Thus, to comply with the instruction, participants had to overcome the preestablished reaction tendency by using effortful volition, the determining tendency ("I really want to do this."). The strength of a determining tendency could then be measured by assessing the maximum degree of practice it was able to overcome.

In contrast to Ach's (1905, 1910) differentiation of motivation and volition, Lewin (1926) aimed at homogenizing motivational and volitional processes subsumed under his construct of quasi needs. Lewin treated effortful volitional

processes as a rare exception that ultimately can be included with other processes belonging to higher goals or more fundamental needs. However, Lewin was unsettled by the work of Ach (1905, 1910) and went to great lengths to integrate and subsume the phenomena of will in his theory of quasi needs. *Quasi needs* are action tendencies involved in pursuing a goal. They themselves create a tension in the individual's motivational system that continues to pull the system toward realizing the action until it is performed. The strength of quasi needs according to Lewin critically depends on their relation to fundamental needs (e.g., for academic achievement, for helping a friend, etc.) of the person. Quasi needs that are closely linked to underlying needs are strong determinants of action, whereas those that have only loose connections to real needs will not have a reliable influence on behavior even if the person tries hard to stick to them. Thus, in contrast to Ach (1905, 1910), Lewin saw the effectiveness of volitional processes as ultimately dependent on the personal attractiveness of the goal and not as critically dependent on effortful volitional goal commitment. This view is still characteristic of the more recent upsurge in research on personal goals and strivings (Emmons, 1986; Little, 1983; Markus & Nurius, 1986; Nurmi, 1992), although some goal researchers have begun to address volitional phenomena in their own right (Gollwitzer, 1990; H. Heckhausen & Gollwitzer, 1987; J. Heckhausen, 2002a; J. Heckhausen, Wrosch, & Fleeson, 2001; Wrosch, Scheier, Miller, Schulz, & Carver, 2003).

Lewin's (1926) critique of Ach's (1905, 1910) construct of a determining tendency of will weakened the interest in volitional phenomena and volition-related theoretical conceptions in Europe (H. Heckhausen, 1987). Along with the rapidly growing influence of behaviorism in the American scientific community of psychologists, this meant that will-related phenomena were soon forgotten as objects of scientific study. It took more than half a century for phenomena of volition to be rediscovered as topics of motivational psychology.

It was Kuhl (1983, 1984, 1987), who first rediscovered the important differences between motivational and volitional states of mind. Kuhl (1983) urged his colleagues to separately study these two motivational phenomena that he referred to as "selection motivation" and "realization motivation," respectively. Traditional motivational psychology, for example, in achievement motivation research (Atkinson, 1957; McClelland, Atkinson, Clark, & Lowell, 1953), has exclusively focused on *selection motivation*, the choice between alternative goals and actions. What remained unaddressed in decades of research on motivation (e.g., achievement motivation) was the question of how individuals move on to realize the chosen goal. This question became ever more pressing when the pioneer of achievement motivation research Atkinson, together with his colleague Birch (Atkinson & Birch, 1970), began studying the "dynamics of

action," tracing fluctuations of motivational forces that ebb and flow with the situational changes in incentives and the dynamic processes of deprivation and satiation of an individual's motives.

MOTIVATION AND VOLITION: WEIGHING AND WANTING

The theoretical constructs of motivation and volition refer to two related yet very distinct states of motivation (Achtziger & Gollwitzer, 2007; H. Heckhausen, 1991). The first addresses the motivational process of making a decision for a particular goal and against alternative goals. Such decisions, if they are not trivial, require the careful and even-handed consideration and weighing of multiple factors, pros, and cons for each alternative. The second involves the volitional processes of maintaining and enhancing the commitment to a goal that one has decided for so that it can be put into action. When wanting a goal in this way, information processing needs to be biased toward favoring the chosen goal over any alternative. Thus, motivation and volition, weighing and wanting are contrasting mind-sets that serve distinct functions.

ACTION PHASES OF PREDECISIONAL MOTIVATION AND POSTDECISIONAL VOLITION

Inspired by Kuhl's (1983) call for a new focus of motivational psychology on the distinction and dynamic between motivational and volitional processes and a first conceptual exploration of the issue (H. Heckhausen & Kuhl, 1985), Heinz Heckhausen and his colleagues at the Max Planck Institute for Psychological Research in Munich (Beckmann & Gollwitzer, 1987; H. Heckhausen, 1991; H. Heckhausen & Gollwitzer, 1987) launched a research program on volition and its role in human action regulation. The conceptual framework for this work was a sequential model of action phases organized around the decisional Rubicon (see Figure 1). The Rubicon metaphor refers to the watershed historical event of Caesar deciding to have his legions cross the river Rubicon in northern Italy, violating the integrity of the Roman Empire and thus instigating a civil war. Used as a metaphor, crossing the Rubicon means to make a decision that has irrevocable consequences.

The Rubicon model reflected what the Munich research team referred to as "*strukturfunktionalistisch*" ("structural functional"). The sequential structure of the model reflected contrasting yet complementary functions of the consecutive action phases: choosing, planning, acting, and evaluating. During the first phase of choosing, the actor has to decide between alternative goals (e.g., alternative tasks, career paths). The function of this predecisional phase dictates its

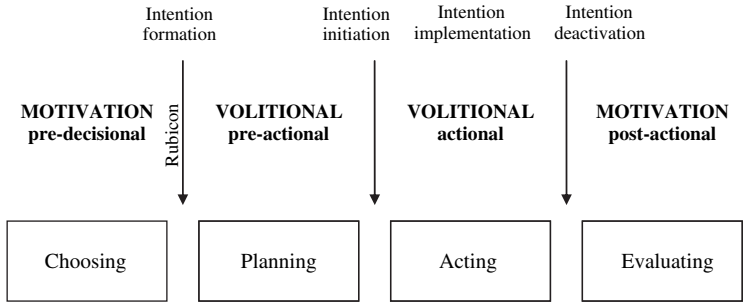

FIGURE 1 The Rubicon model of action phases (adapted from H. Heckhausen & Gollwitzer, 1987).

predominant mode of information processing, namely, one of carefully weighing alternative goal intentions and deliberating the pros and cons regarding the goal's incentives (attractiveness of the activity itself, the outcome aimed for, and the consequences of the outcome) and expectancies about attaining those. This requires a deliberative mind-set, reality-oriented information processing, enhanced receptivity to information, broad (not narrow) information search, and culminates in a decision about an intention for action (goal).

Once the decision about a goal intention has been made, and thus the decisional Rubicon has been crossed, the next phase is postdecisional yet preactional. This phase is functionally dedicated to planning the action when action has to be delayed due to not-yet-present opportunities or other urgent activities. During this preactional phase, intents are formed about opportunities for action (when to do it?) in terms of situational triggers, required conditions, timing or deadlines, and about the implementation of action (What has to be done and how?), conditions to be fulfilled when deactivation of intention would be appropriate (e.g., when action goal has been reached or turns out to be unattainable). The mind-set during this phase should be focused on figuring out the plans with a narrow information search and bias toward committing to the goal and identifying opportunity for action.

The next phase is the actual action phase when the goal decision and implementational plans are being carried out in behavior. During this phase, information processing should be narrowly focused on the action required to reach the goal and situational cues to prompt such action while blocking out any distractions or conflicts with other goal commitments. The mode of information processing should be realization oriented (as opposed to reality oriented), and the mind-set should entail enhanced perceptions of personal control.

Finally, during the postactional phase, the agent needs to evaluate the degree to which the action outcome matches the original goal intention and to evaluate and analyze the effectiveness of the completed action. Such evaluation needs to

be unbiased and as reality oriented as possible to allow the individual to learn for future attempts to reach this or similar goals.

A series of mostly experimental studies (Achtziger & Gollwitzer, 2007) supports the propositions of the Rubicon model of action phases and shows how specific mind-sets for information processing during different phases of action reflect the function of the respective phase in the action cycle. A diverse set of indicators, such as breadth of attention, receptiveness to new information, incidental and intentional recall of content relevant for deliberation versus implementation, and illusion of control, demonstrate how mind-sets are tailored to fit the function of predecisional versus postdecisional phases of action.

In sum, the different phases have distinct and complementary functions (first decide, then plan, than implement, then evaluate) and mind-sets matching these functions. One can identify two contrasting mind-sets, the motivational mind-set and the volitional mind-set. The motivational (or deliberative) is activated during the predecisional and the postactional phase, is deliberative, reality oriented, and avoidant of bias. The volitional (or implementation) mind-set is activated during the preactional and the actional phase, is implementary, realization oriented, and biased in favor of goal commitment. The greatest efficiency is achieved throughout the action cycle by function-oriented cognitive processing within the different action phases and by discrete transition between phases so that the individual does not compromise the purpose of a given action phase (be it choosing a goal or implementing an action intention) at any point in the action cycle. Of course, individual agents can be expected to perform these switches from goal choice to goal engagement and from goal engagement to disengagement and evaluation imperfectly. In fact, such lacking synchronization in switches between different phases of the action cycle (Kuhl, 1981; Kuhl & Kazen, 1994) are at the core of theories of adaptive and maladaptive personality development and psychopathy that are based on motivational psychology (Kuhl, 1985, 2000). For instance, learned helplessness indicated by impaired task performance after repeated failure occurred in those participants who were unable to disengage from failure-related ruminations.

HUMAN AGENCY IN REGULATING DEVELOPMENT ACROSS THE LIFE COURSE

In this section, I provide a brief and—in the interest of not distracting from the focus on the topic of motivation and volition—simplified version of the life-span theory of control and its propositions about the interface and transaction between individual human agents, the societal structure of the life course, and age-related biological change. The limited space and focused nature of

this special issue do not allow for an extensive and comparative review of alternative models of developmental regulation or human agency in the life course. Even with regard to the life-span theory of control's contribution to broader and systemic issues of agent–society interface, this discussion has to be very restricted. More elaborate discussions of the theory's propositions about topics related to the dialectic of human agency and societal context can be found elsewhere and include the interface of canalization via societal institutions and social structure and individual selectivity (J. Heckhausen, 1999, 2002b; J. Heckhausen & Schulz, 1999), the individual's active selection and shaping of social ecologies in accordance with developmental goals (J. Heckhausen, 1991, 1999, 2002b, 2007; J. Heckhausen & Schulz, 1999; Lang & Heckhausen, 2006), and the transaction between individual agency and social change (J. Heckhausen, 2005; J. Heckhausen & Heckhausen, 2007).

According to modern systems theories of life-span development (Lerner, 2002) and life-course sociology (Mortimer & Shanahan, 2003), individual agents play a significant part in shaping individuals' lives in the context of the opportunities and constraints provided by biological changes and social context (societal institutions, stratification, and age-related social norms). The potential for ontogenetic growth and variation across the human life course is immense, and as a consequence, choices between the many trajectories have to be made, and these choices have to be more or less consistently pursued throughout an individual's life span to bring about productive life courses (J. Heckhausen, 1999). Societies vary with regard to how much regulation is enforced by the society, its institutions, social structure, and sanctions for adherence to age-related (e.g., retirement) and career-path related (e.g., permeability between educational and career tracks) restrictions. The degrees of freedom for individual choice is complementary (J. Heckhausen & Schulz, 1999) and can be viewed as a chance but also as a burden for self-regulation, especially under conditions of low opportunities (J. Heckhausen, 2002b; J. Heckhausen & Schulz, 1999).

People do not just develop as passive objects of societal and biological forces, but they take up opportunities and respond to constraints that are given by biological change (maturation, aging) and societal structuring of the life course. Age-graded opportunities and the developmental tasks associated with them can not shape individual development unless the individual personally adopts them as his or her own developmental goals. To the extent that individuals adopt a developmental task (Havighurst, 1952) as a developmental goal for their own future, individuals realize the productive influence of biology and society on their own biography and developmental trajectory. Thus, to a large extent development is the result of the individual taking up age-graded pursuits of developmental goals (J. Heckhausen, 1999). In this sense, developmental goals are the organizing units of developmental regulation (J. Heckhausen, 1999). I note here that to the extent that a society does not sanction individuals' departure from

normative life transitions and achievements, individuals have to make decisions based on the costs incurred by foregoing ideal timing for a given developmental goal. Although individuals in modern societies are relatively free to deviate (e.g., marry late), they do have to consider opportunity costs (e.g., lowered opportunity to have children). Moreover, the immediate social context may well impose constraints in terms of expectations and responsibilities resulting from social ties to family and friends and from biographical encumbering (Lang & Heckhausen, 2006).

The life course can be conceptualized as a field of action for the individual to adopt, engage with, and disengage from developmental goals (e.g., complete education, launch a career, build a family, etc.) that may more or less resemble normative developmental tasks during specific age ranges (J. Heckhausen, 1999). Opportunities for pursuing specific developmental goals are not uniformly distributed across age but wax and wane across the life span, rendering certain phases ideal time windows for goal engagement, whereas earlier or later phases should be avoided. The trajectories of opportunities emerge, peak, and fade across a lifetime and thus provide an age-graded timetable of sequentially organized investments in developmental goals that the individual can use as a guideline for deciding which goal should have priority when.

Many goals are subject to trajectories of opportunity that end up close to zero or at very low levels of goal attainability. We define as a *developmental deadline* those transition points when opportunities for goal attainment vanish almost completely, or goal investment in this particular goal becomes so costly that it seriously undermines functioning in other important domains of life (J. Heckhausen, 1999; J. Heckhausen et al., 2001; Wrosch & Heckhausen, 1999). A case in point is the biological clock associated with childbearing in women (J. Heckhausen et al., 2001). Developmental deadlines are often not biologically determined, rigid, and narrow. Many developmental deadlines are socially constructed and indeed individually coconstructed. For example, finding a new partner in midlife or old age becomes increasingly unlikely, as fewer unmarried individuals are available in a given social ecology. Although this decreasing availability with age may be gradual, social norms may translate this into discontinuous drops in attractiveness as people pass certain age limits. Moreover, the individual agent may well enhance the perceived cliffs in this landscape of opportunity by constructing these changes as distinct and final deadlines for starting a new romantic relationship (Wrosch & Heckhausen, 1999). From the perspective of an action-phase model that is informed by volition-directed research, such discrete shifts in motivational/volitional mind-set are most adaptive, and thus, individuals are likely to construct their perception of action opportunities accordingly as a discontinuous shift rather than as gradual change.

MOTIVATIONAL AND VOLITIONAL PHASES OF ACTION IN DEVELOPMENTAL GOAL CYCLES: AN ACTION-PHASE MODEL OF DEVELOPMENTAL REGULATION

An action-phase model of developmental regulation was developed (see Figure 2) that builds on and expands the Rubicon model of action phases in various ways. The major distinctive characteristics of this new model of action phases that make it suitable to the phenomenon of developmental regulation are (a) the focus on medium-range goals that expand over developmental time, (b) the inclusion of developmental deadlines as another critical transition in the action cycle besides the decisional Rubicon, (c) the proposed close connection of goal engagement and of goal disengagement with changes in opportunity for goal pursuit and goal attainment, and (d) the integration with the life-span theory of control's propositions about which control strategies of goal engagement and of goal disengagement and self-protection should be activated (i.e., are adaptive) during which action phase.

In Figure 2, the two major transitions, decisional Rubicon and deadline (when goal striving opportunities are lost), are marked as critical barriers in the flow of the action cycle. The cycle begins with the predecisonal phase of choosing during which individuals should use heuristics of optimized goal choice (J. Heckhausen, 1999; J. Heckhausen & Schulz, 1993) such as goal–opportunity match (Is this a feasible goal at this time of my life?), analysis of consequences for the long term or for other domains of life (Is investing in this goal going to be detrimental to

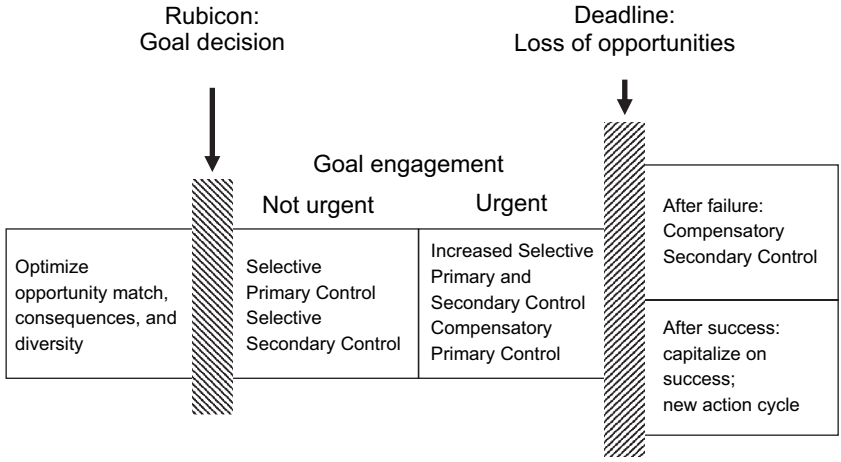

FIGURE 2 Action-phase model of developmental regulation (adapted from J. Heckhausen, 1999).

other goals or will it promote them?), and assessment of the degree of diversity (Will this goal investment narrow down my fallback options too much?)

Once a decision for a particular developmental goal (e.g., have a child, get a bachelor of arts in sociology) is made, and thus the decisional Rubicon is crossed, the individual should enter the phase of goal engagement with its specific control strategies. *Selective primary control* strategies imply that the behavioral resources such as time, effort, and skills are focused on pursuing the goal via investing time, effort, and skills to attain goal. *Selective secondary control* implies that the motivational resources are selectively focused and mobilized via mental (re)constructions of enhanced goal value, enhanced perceptions of controllability, and shielding of goal commitment against distraction by alternative goals. The closer the individual comes to the developmental deadline, the less favorable the opportunities are, the more urgent goal investment becomes and the more selective and mobilized the goal engagement strategies should become. Moreover, as they are moving "dangerously" close to the deadline for ever attaining their goal (e.g., having a child, finishing their degree when college funding runs out), individuals may well choose to resort to special means, that is *compensatory primary control* too (e.g., fertility treatment, student counseling).

However much the individual tries to mobilize goal engagement strategies and resources, if there is no success, ultimately opportunities will become prohibitively scarce or costly, and thus the deadline will be passed. Under such conditions, the best move is to disengage from the obsolete goal. Disengagement prevents further waste of resources, protects against frustration and despair, and frees up both behavioral and motivational action resources for other more promising goal pursuits. However, a switch from full-blown urgent goal engagement to disengagement is a formidable self-regulatory challenge—just the right testing ground for individual differences in the capacity to developmentally regulate life-course transitions.

APPLYING THE ACTION-PHASE MODEL TO DEVELOPMENTAL REGULATION OF LIFE-COURSE TRANSITIONS

Our research program at the Max Planck Institute for Human Development in Berlin and since 2000 at the University of California, Irvine addresses developmental regulation around age-related deadlines for attaining important developmental goals focuses on life-course transitions involving substantial shifts in the opportunities for attaining important goals. A first set of studies (Heckhausen et al., 2001; Wrosch & Heckhausen, 1999) addressed the transition from favorable to unfavorable opportunities to attain important goals in adulthood, namely, bearing a child and living with an intimate partner. These studies were cross-sectional because the changes in opportunities extend over long time

periods that make longitudinal tracking difficult. A second and ongoing set of studies (Haase, Heckhausen, & Köller, in press; Heckhausen & Tomasik, 2002) addresses longitudinal changes in goal engagement and goal disengagement during a transition into a phase of improved action opportunities, the transition after high school.

From Goal Engagement to Disengagement: Biological Clock and Partnerships

The research program was launched with a focus on the biological deadline for childbearing, the infamous biological clock. This developmental deadline can be seen as the prototype of developmental deadlines. It has fairly clear-cut age boundaries, it is universal, and it is irreversible for most practical purposes (except for very few very wealthy people who can afford extraordinary medical interventions).

J. Heckhausen et al. (2001) conducted two studies on developmental regulation before and after passing the developmental deadline for childbearing. In an attempt to investigate women before and after the biological clock runs out, J. Heckhausen et al. (2001) recruited childless women in the age ranges of 30 to 35 years (predeadline urgency condition), 40 to 45 years (just after deadline), and 50 to 55 years (typically long after deadline). J. Heckhausen et al. (2001) investigated these women's self-reported control strategies with regard to the goal of bearing a child. The control strategies were measured using a domain-specific version of the Optimization in Primary and Secondary Control Scales (Heckhausen, Schulz, & Wrosch, 1998), which addresses the primary and secondary control strategies with regard to having a biological child. J. Heckhausen et al.'s (2001) findings in this study indicate that the childless women in their early 30s (the urgent group) were highly engaged with the goal of having a first child. They endorsed higher ratings for those control strategies that are involved in goal engagement (i.e., selective primary control, selective secondary control, and compensatory primary control) than the childless women in their 40s or 50s (the postdeadline groups). Conversely, women in their 40s and 50s rated strategies of compensatory secondary control significantly higher than the younger, predeadline women. Thus, the findings show that both premenopausal women and women in an age range of declining fertility or even postmenopause reported patterns of control strivings that were congruent with the opportunities for childbearing given at their respective ages.

In addition, J. Heckhausen et al. (2001) investigated the implications opportunity-congruent endorsements of control strategies (i.e., either goal engaged or goal disengaged and self-protective) had for well-being, more specifically depressive symptoms. The findings were a compelling validation of the theory. Women in the predeadline (urgent) group who endorsed strong selective primary control striving for childbearing also reported fewer depressive

symptoms than their age peers with less goal engagement. Conversely, women in their early 40s or 50s who highly endorsed child-wish-related primary control striving reported more depressive symptoms than their age peers with less goal engagement. Thus, patterns of well-being reflect the degree of congruence between opportunities and goal engagement (as reflected in control striving); greater congruence is associated with relatively little depressive symptoms, and incongruence is related to more pronounced depressive symptomatology. Additional evidence for this congruence effects was found for selective information processing: Predeadline women were better at recalling child-relevant information than perideadline or postdeadline women. Also the more information-processing biases were in tune with child-bearing opportunities, the better off the women were in terms of the positive and negative affect they reported.

Another deadline-subjected goal addressed in our research program was the goal of establishing an intimate relationship (Wrosch & Heckhausen, 1999). The developmental deadline in this case is much less clear cut in terms of the age-related timing than the biological clock. Perceiving an age-related deadline for finding a long-term romantic partner is thus more a matter of individual construction of a discrete deadline imposed to organize a more gradual loss of opportunities. Finding an intimate partner for a long-term relationship is possible throughout adulthood and thus seems an unlikely area to study deadline-related control behavior. However, the probability of finding a new partner undergoes a linear decline across adulthood from about 80% in early adulthood to 20% in advanced mid-life. Thus, individuals have to adjust their control behavior regarding intimate relationships accordingly if they want to avoid investing in a costly and relatively futile endeavor. It can be expected, therefore, that individuals set their own deadlines for disengaging in the search for an intimate partnership sometime in mid-life. This allows them to be more organized and efficient; they can unambiguously strive for a partnership before the deadline and mount an organized retreat once their self-imposed deadline has passed.

In Wrosch and Heckhausen's (1999) study on partnership-related deadline behavior, recently separated men and women were recruited from two age groups: 20 to 35 and 50 to 60 years of age. Presumably, participants in the younger group have a high probability of finding an intimate partner, whereas those in the older group have a low probability of finding an intimate partner. Similar to the childbearing study, the findings show that goal-engagement-related control strategies were endorsed more by the younger than the later mid-life adults; and later mid-lifers gave higher ratings to compensatory secondary control items that reflected goal disengagement or self-protection. Information processing was also biased toward the age-appropriate goal engagement versus disengagement. The younger adults recalled relatively more positive compared to negative aspects of partnerships than late mid-lifers.

After a period of 18 months, the adults were interviewed again (Wrosch & Heckhausen, 1999), this time focusing on their psychological well-being. Would congruent goal engagement and goal disengagement be superior to an incongruent engagement pattern in bringing about positive well-being over the course of 18 months? Wrosch and Heckhausen found that compensatory secondary control strategies were beneficial for late mid-lifers but detrimental for young adults. If young adults gave up the goal of partnership after a recent separation, their positive affect was likely to decline over the course of the following 18 months. For women and men in their 50s, however, giving up the goal of achieving an intimate partnership promoted positive affect over time.

In sum, the cross-sectional studies addressing adults' control behavior when navigating a transition from favorable to unfavorable opportunities for attaining an important goal of adult development supported the action-phase model of developmental regulation. When approaching a deadline, adults exhibited intense goal engagement involving the relevant control strategies. In contrast, after passing a deadline, the adults were likely to disengage using compensatory secondary control strategies. Moreover, the more this pattern of opportunity-congruent goal engagement and disengagement was exhibited the better their psychological well-being and mental health. Evidence was also found that cycles of goal engagement not only comprise explicit intentions and behaviors accessible to self-report but also involve implicit cognitive orientations that facilitate information processing in the service of the different action phases.

From Goal Choice to Goal Engagement: Transition Into Adulthood

As a next step in the research program, we aimed at a longitudinal tracking of the adaptation of goal engagement and the respective control strategies to a transition in opportunities. These longitudinal studies addressed the transition into an action phase, from goal setting to goal engagement, thus crossing the Rubicon transition. Haase, Heckhausen, and Köller (in press) and J. Heckhausen and Tomasik (2002) picked a transition that is highly predictable and happens during a relatively short time span: the transition after high school into work or higher education and tracked adolescents' educational and vocational goals and control strategies used to attain them.

The transition into adulthood is particularly affected by social changes associated with a global and highly interdependent economy such as less long-term commitments of employers and employees, greater permeability between careers paths, marriage instability, decoupling of family and employment transitions, and variable retirement arrangements and timing. Under these less stable, predictable, and more volatile conditions, the regulatory challenge becomes increasingly the responsibility of the individual agent. Large-scale studies

that have investigated globalization effects in numerous countries reveal that such destandardizations accentuate social inequality, particularly with regard to uncertain employment and underemployment in general (Dooley, 2003) and most pronouncedly for youth making the transition into adulthood (Blossfeld, Klijzing, Mills, & Kurz, 2005; Shanahan, 2000). Far from celebrating tendencies for destandardization and deregulation of the life course as gains in individual freedom, life-course sociologists have warned that the societal deregulation of the life course comes at a potentially high cost for individuals (Blossfeld et al., 2005; Bruckner & Mayer, 2005). The risks involved in a decreasing structuring of life-course transitions and trajectories for careers and family appear to be particularly high for those who have little access to resources and may well end up excluded from the benefits of education, stable employment, health care, and other favorable aspects of society (Bynner, 2001, 2005; J. Heckhausen, 2005).

In the German system, the developmental task of entering the work force is scaffolded by the institution of apprenticeship (Hamilton, 1990), which channels youth into vocational career paths and provides them with certificates of vocational qualifications. However, this has become a considerable challenge because due to globalization and economic strain associated with German reunification, apprenticeship positions have become hard to get so that about 30% of a given cohort end up with no apprenticeship position when they graduate from school. Thus, German adolescents face the challenge of competing for an apprenticeship, which will shape the career and financial prospects for their entire future life, in a situation of scarce supply. The acuteness of the challenge is heightened by the implicit yet inescapable deadline for starting an apprenticeship because chances to ever receive vocational training plummet 2 years after school graduation (Blossfeld, 1990). Thus, the urgent task for these adolescents is one of choosing and securing an apprenticeship position during a short period of time in 10th grade just before graduating from school. A particularly challenging aspect of this choosing and securing is to calibrate one's aspirations such that one's potential for a well-paying vocation is realized, yet overshooting one's potential is avoided to not risk failure to attain an apprenticeship altogether.

To track control striving and engagement for the goal of seeking an apprenticeship, J. Heckhausen and Tomasik (2002) studied the senior classes in middle-tier schools (called "*Realschulen*") using a microsequential approach during 10th grade (bimonthly data collections) and followed them through 3 years after graduation. Regarding the vocational aspirations, J. Heckhausen and Tomasik found that these 16-year-old students calibrated their vocational aspirations in terms of social prestige to their actual school grades, thus mirroring the selection criterion of possible employers. They not only adapted their explicit vocational goals but also their notions about dream jobs. Those whose dream jobs in 9th grade had been higher in social prestige than the vocational training they could

realistically aspire to adjusted their dream job downwardly; and those whose dream jobs were lower in social prestige than what they could realistically aspire to adjusted upwardly during the urgent phase of goal striving in 10th grade.

Regarding goal engagement and the activation of the relevant control strategies (selective primary and selective secondary control), the majority of youth displayed a high level of commitment and investment (Haase et al., 2007). Goal engagement was beneficial to both male and female youth in terms of improving psychological well-being over time. However, only for the young women, goal engagement made a difference in the likelihood to attain an apprenticeship. This latter finding may be due to particularly unfavorable conditions for girls to obtain apprenticeships in the German system, with only relatively few vocational careers likely to accept female applicants.

It is impressive to find this level of sophisticated adaptive goal engagement and goal calibration in these 15- to 16-year-old German adolescents. Most likely, the institutional scaffolding of the school-to-work transition in the German system is a great help to these adolescents because it makes salient what the challenges are and which behaviors and decisions are adaptive during the critical phase.

Characteristics of the labor market and educational system in other countries render the school-to-work transition a much riskier enterprise. A case in point is the United States where institutional channeling of the transition into work is scarce (Hamilton, 1990; Heinz, 1999), and diverse avenues into higher education (2-year college, 4-year college) further enrich the possible paths to a career. Hamilton (1994) characterized such societal conditions as low in "transparency" and high in "permeability." Under such conditions, the navigation of the transition is up to the individual, her or his regulatory skills, and social support. In a longitudinal study of high school seniors from the Los Angeles metropolitan area, J. Heckhausen, Chang, Chen, and Greenberger (2007) identified evidence for the highly adaptive value of extremely optimistic aspirations under such societal conditions. The study is still ongoing, and J. Heckhausen et al. (2007) are eager to find out whether initial benefits of what seem like illusory educational and career goals of high school seniors will ultimately pay off or lead into dead-end paths of futile investment into unrealistic dreams of educational and career attainment.

CONCLUSION

The distinction between volitional and motivational mind-set and their sequential organization in an action-phase model is a productive conceptual framework for research on developmental regulation across the life course. Individuals are more likely to be effective agents in shaping their own development and life-course transitions if they orchestrate their agentic resources

effectively into phases of motivational deliberation of choices and evaluation of past action on one hand and phases of volitional commitment to implementing chosen goals on the other hand. Under societal conditions of deinstitutionalization of the life course and thus increased permeability of life-course trajectories, such action-phase models addressing the effectiveness of individuals as agents in development will be essential tools for life-course research. The action-phase model of developmental regulation can be productively applied to a wide range of regulatory challenges in life-span developmental psychology and life-course sociology.

REFERENCES

Ach, N. (1905). *Ueber die Willenstaetigkeit und das Denken* [About volition and thinking]. Goettingen, Germany: Vandenhoeck & Ruprecht.

Ach, N. (1910). *Ueber den Willensakt und das Temperament* [About acts of will and temperament]. Leipzig, Germany: Quelle & Meyer.

Achtziger, A., & Gollwitzer, P. M. (2007). Motivation and volition in the course of action. In J. Heckhausen & H. Heckhausen (Eds.), *Motivation and action* (pp. 202–226). New York: Cambridge University Press.

Atkinson, J. W. (1957). Motivational determinants of risk-taking behavior. *Psychological Review*, *64*, 359–372.

Atkinson, J. W., & Birch, D. A. (1970). *A dynamic theory of action*. New York: Wiley.

Beckmann, J., & Gollwitzer, P. M. (1987). Deliberative and implemental states of mind: The issue of impartiality in predecisional and postdecisional information processing. *Social Cognition*, *5*, 259–279.

Blossfeld, H.-P. (1990). Changes in educational careers in the Federal Republic of Germany. *Sociology of Education*, *63*, 165–177.

Blossfeld, H.-P., Klijzing, E., Mills, M., & Kurz, K. (Eds.). (2005). *Globalization, uncertainty and youth in society*. London: Routledge.

Bruckner, H., & Mayer, K. U. (2005). De-standardization of the life course: What it might mean? And if it means anything, whether it actually took place? *Advances in Life Course Research*, *9*, 27–53.

Bynner, J. (2001). British youth transitions in comparative perspective. *Journal of Youth Studies*, *4*, 5–23.

Bynner, J. (2005). Rethinking the youth phase of the life course: The case for emerging adulthood? *Journal of Youth Studies*, *8*, 367–384.

Dooley, D. (2003). Unemployment, underemployment, and mental health: Conceptualizing employment status as a continuum. *American Journal of Community Psychology*, *32*, 9–20.

Emmons, R. A. (1986). Personal strivings: An approach to personality and subjective well-being. *Journal of Personality and Social Psychology*, *51*, 1058–1068.

Gollwitzer, P. M. (1990). Action phases and mind-sets. In E. T. Higgins & R. M. Sorrentino (Eds.), *Handbook of motivation and cognition: Foundations of social behavior* (Vol. *2*, pp. 53–92). New York: Guilford.

Haase, C. M., Heckhausen, J., & Köller, O. (in press). Goal engagement during the school-work-transition: Essential for girls, beneficial for all. *Journal of Research on Adolescence.*

Hamilton, S. F. (1990). *Apprenticeship for adulthood: Preparing youth for the future*. New York: Free Press.

Hamilton, S. F. (1994). Employment prospects as motivation for school achievement: Links and gaps between school and work in seven countries. In R. K. Silbereisen & E. Todt (Eds.), *Adolescence in context: The interplay of family, school, peers, and work in adjustment* (pp. 267–303). Cambridge, England: Cambridge University Press.

Havighurst, R. J. (1952). *Developmental tasks and education*. New York: McKay.

Heckhausen, H. (1987). Vorsatz, Wille, und Beduerfnis: Lewins fruehes Vermechtnis und ein zugeschuetteter Rubikon [Intention, will, and need: Lewin's early legacy and a missed Rubicon]. In H. Heckhausen, P. M. Gollwitzer & F. E. Weinert (Eds.), *Jenseits des Rubikon: Der Wille in den Humanwissenschaften* (pp. 86–96). Berlin: Springer-Verlag.

Heckhausen, H. (1991). *Motivation and action*. New York: Springer-Verlag.

Heckhausen, H., & Gollwitzer, P. M. (1987). Thought contents and cognitive functioning in motivational and volitional states of mind. *Motivation and Emotion*, *11*, 101–120.

Heckhausen, H., & Kuhl, J. (1985). From wishes to action: The dead ends and short cuts on the long way to action. In M. Frese & J. Sabini (Eds.), *Goal-directed behavior: The concept of action in psychology* (pp. 134–159). Hillsdale, NJ: Lawrence Erlbaum Associates.

Heckhausen, J. (1991). *CAMAQ, Control Agency Means-ends in Adulthood Questionnaire*. Berlin, Germany: Max Planck Institute for Human Development and Education.

Heckhausen, J. (1999). *Developmental regulation in adulthood: Age-normative and sociostructural constraints as adaptive challenges*. Cambridge, England: Cambridge University Press.

Heckhausen, J. (2002a). Developmental regulation of life-course transitions: A control theory approach. In L. Pulkkinen & A. Caspi (Eds.), *Paths to successful development: Personality in the life course* (pp. 257–280). Cambridge, England: Cambridge University Press.

Heckhausen, J. (2002b). Transition from school-to-work: Societal opportunities and the potential for individual agency. *Journal of Vocational Behavior*, *60*, 173–177.

Heckhausen, J. (2005, June). *Developmental regulation under conditions of social change: Heyday or doomsday for individual agency*. Paper presented at the Workshop Self-Regulation in Context of Social Changes, the International Society for the Study of Behavioral Development, Moscow, Russia.

Heckhausen, J. (2007). Soci(et)al scaffolding of individual growth across the life span. In R. K. Silbereisen & R. M. Lerner (Eds.), *Approaches to positive youth development* (pp. 93–108). London: Sage.

Heckhausen, J., Chang, E. S., Chen, C., & Greenberger, E. (2007). *Optimistic goal selection and control striving during the transition after high school*. Unpublished manuscript, University of California, Irvine.

Heckhausen, J., & Heckhausen, H. (2007). Motivation and development. In J. Heckhausen & H. Heckhausen (Eds.), *Motivation and action* (pp. 384–443). New York: Cambridge University Press.

Heckhausen, J., & Schulz, R. (1993). Optimization by selection and compensation: Balancing primary and secondary control in life span development. *International Journal of Behavioral Development*, *16*, 287–303.

Heckhausen, J., & Schulz, R. (1999). Biological and societal canalizations and individuals' developmental goals. In J. Brandtstädter & R. Lerner (Eds.), *Action and self-development: Theory and research through the life-span* (pp. 67–103). Thousand Oaks, CA: Sage.

Heckhausen, J., Schulz, R., & Wrosch, C. (1998). *Developmental regulatives in adulthood: Optimization in primary and secondary control—A multiscale questionnaire*. (Technical Report). Berlin, Germany: Max Planck Institute for Human Development.

Heckhausen, J., & Tomasik, M. J. (2002). Get an apprenticeship before school is out: How German adolescents adjust vocational aspirations when getting close to a developmental deadline. *Journal of Vocational Behavior*, *60*, 199–219.

Heckhausen, J., Wrosch, C., & Fleeson, W. (2001). Developmental regulation before and after a developmental deadline: The sample case of "biological clock" for child-bearing. *Psychology and Aging*, *16*, 400–413.

Heinz, W. R. (1999). *From education to work: Cross-national perspectives*. Cambridge, England: Cambridge University Press.

Kuhl, J. (1981). Motivational and functional helplessness: The moderating effect of state versus action orientation. *Journal of Personality and Social Psychology*, *40*, 155–170.

Kuhl, J. (1983). *Motivation, Konflikt und Handlungskontrolle* [Motivation, conflict, and action control]. Berlin, Germany: Springer-Verlag.

Kuhl, J. (1984). Motivational aspects of achievement motivation and learned helplessness: Toward a comprehensive theory of action control. In B. A. Maher & W. B. Maher (Eds.), *Progress in experimental personality research* (Vol. 13, pp. 99–171). New York: Academic.

Kuhl, J. (1985). Volitional mediators of cognition-behavior consistency: Self-regulatory processes and action versus state orientation. In J. Kuhl & J. Beckmann (Eds.), *Action control: From cognition to behavior* (pp. 101–128). Heidelberg, Germany: Springer-Verlag.

Kuhl, J. (1987). Action control: The maintenance of motivational states. In F. Halisch & J. Kuhl (Eds.), *Motivation, intention, and volition* (pp. 279–291). New York: Springer.

Kuhl, J. (2000). A theory of self development: Affective fixation and the STAR model of personality disorders and related styles. In J. Heckhausen (Ed.), *Motivational psychology of human development: Developing motivation and motivating development* (pp. 187–211). New York: Elsevier Science.

Kuhl, J., & Kazen, M. (1994). Self-discrimination and memory: State orientation and false self-ascription of assigned activities. *Journal of Personality and Social Psychology*, *66*, 1103–1115.

Lang, F. R., & Heckhausen, J. (2006). Motivation and interpersonal regulation across adulthood: Managing the challenges and constraints of social contexts. In C. Hoare (Ed.), *Handbook of adult development and learning* (pp. 149–166). New York: Oxford University Press.

Lerner, M. R. (2002). *Concepts and theories of human development*. Mahwah, NJ: Lawrence Erlbaum Associates.

Lewin, K. (1926). Vorsatz, Wille und Beduerfnis [Intention, will, and need]. *Psychologische Forschung*, *7*, 330–385.

Little, B. R. (1983). Personal projects: A rationale and method for investigation. *Environment and Behavior*, *15*, 273–309.

Markus, H., & Nurius, P. (1986). Possible selves. *American Psychologist*, *41*, 954–969.

McClelland, D. C., Atkinson, J. W., Clark, R. A., & Lowell, E. L. (1953). *The achievement motive*. New York: Appleton-Century-Crofts.

Mortimer, J. T., & Shanahan, M. J. (Eds.). (2003). *Handbook of the life course*. New York: Kluwer/Plenum.

Nurmi, J.-E. (1992). Age differences in adult life goals, concerns, and their temporal extension: A life course approach to future-oriented motivation. *International Journal of Behavioral Development*, *15*, 487–508.

Shanahan, M. J. (2000). Pathways to adulthood in changing societies. *Annual Review of Sociology*, *26*, 667–692.

Wrosch, C., & Heckhausen, J. (1999). Control processes before and after passing a developmental deadline: Activation and deactivation of intimate relationship goals. *Journal of Personality and Social Psychology*, *77*, 415–427.

Wrosch, C., Scheier, M. F., Miller, G. E., Schulz, R., & Carver, C. S. (2003). Adaptive self-regulation of unattainable goals: Goal disengagement, goal reengagement, and subjective well-being. *Personality and Social Psychology Bulletin*, *29*, 1494–1508.