

Get an Apprenticeship before School Is Out: How German Adolescents Adjust Vocational Aspirations When Getting Close to a Developmental Deadline

Jutta Heckhausen

University of California, Irvine

and

Martin J. Tomasik

Max Planck Institute for Human Development, Berlin, Germany

Opportunities to attain important life goals are sequenced in age-graded trajectories that wax and wane throughout life. A prime example of such age-graded opportunity structures is the transition from school to work. The institutions of vocational training in Germany closely scaffold this transition and provide developmental deadlines for attaining the critical transition, namely finding an apprenticeship position. Adjustments of vocational aspirations are investigated with regard to the social prestige of three indicators of aspirations, “dream job,” “vocation I am interested in,” and apprenticeships applied for. Findings indicate that adolescents progressively adjusted their “dream job” to “job I am interested in” as the deadline approaches. Moreover, overall adolescents matched their school performance to the social prestige of apprenticeships for which they applied. Boys and girls whose motivational orientation did not match their gender prototype attained particularly high levels of achievement and aspiration. © 2002 Elsevier Science (USA)

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In industrialized societies, the transition from school to work is a period of instability with heightened potential for downward as well as upward mobility, thus

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Address correspondence and reprint requests to Jutta Heckhausen, Department of Psychology and Social Behavior, University of California at Irvine, 3340 Social Ecology II, Irvine, CA 92697-7085. E-mail: heckhaus@uci.edu.

bearing significant consequences for adult life. However, different societies, their vocational systems and labor markets, provide more or less institutionalized pathways for this transition. Hamilton (1990) has shown that Germany and the United States may be at extreme ends on this dimension. The German vocational system channels adolescents through apprenticeships, which provide entry into vocational career tracks for adult employment. In contrast, entry into work life in the United States is much a function of regional and seasonal opportunity and individual choice. Hamilton (1994) has coined the terms "transparency" and "permeability" to reflect these fundamental differences in labor markets of different countries. Transparency is high in a more codified vocational system as in Germany and low in a more flexible system as in the United States. At the same time, systems such as the German apprenticeship institution typically come with low permeability once a vocational track has been chosen, whereas the more flexible system in the United States allows for less cumbersome and less costly career changes later on in adulthood.

For adolescents approaching the transition from school to work, these contrasting characteristics of the vocational systems in the two countries make for different challenges to their capacities of developmental regulation. While adolescents in the United States have to navigate a period of "floundering," with all its risk and potential (Hamilton, 1990), German adolescents are confronted with the challenge of choosing and securing an apprenticeship position during a short period of time in 10th grade that will determine the employment prospects for their entire adult lives.

This article addresses adolescents' developmental regulation in a societal context, in Germany, that is characterized by strong institutional channeling, extensive consequences of the transition for the individual's long-term performance in the labor market, and increased risks of maladaptive transitions due to economic crisis and the shortage of apprenticeship positions. The traditional pattern of school-to-work transition prescribes that the adolescent completes high school with Grade 10 and enters an apprenticeship contract, where s/he receives 3 years of extensive training in a specific vocation (e.g., cook, car mechanic, and bank clerk) which is accompanied by a 2-day-per-week school education in vocation-related subjects (e.g., accounting for bank clerks, engineering for car mechanics, chemistry for cooks). After successful completion of the apprenticeship the chances for securing employment in the respective vocation used to be fairly good, thus providing a path to a vocational career with financial security, little risk for downward mobility later on, and thereby a solid economical base for building a family and raising children.

The economic development associated with processes of globalization before and in association with German reunification destabilized this transition both with respect to the first step of securing an apprenticeship for all applicants and with regard to the second step, the employment security for those who completed an apprenticeship. Those companies that needed fewer skilled workers due to the recession were, of course, less interested in training new apprentices. As a result,

the positions for apprenticeships were reduced, especially those in the private sector.¹

Thus, German adolescents face the challenge of competing for an apprenticeship, which will shape their career and financial prospects for their entire future, in a situation of scarce supply. The acuteness of the challenge is heightened by the implicit yet inescapable deadline for starting an apprenticeship. Blossfeld (1990) has demonstrated that German adolescents who do not start vocational training within 2 years of graduating from school will not stand a significant chance of ever receiving vocational training and thus may be doomed to unskilled work for their entire working lives. The fact that opportunities for starting apprenticeships after school graduation at 10th grade are rapidly vanishing is widely known and accepted as a merciless time constraint that prompts urgency in searching for an apprenticeship.

TRANSITION FROM SCHOOL TO VOCATIONAL TRAINING: A CASE OF MASTERING A DEVELOPMENTAL DEADLINE

The situation described above, in which a highly normative transition is closely regulated by the age and educational status of the individual, is a case in point for a developmental deadline. The concept of developmental deadlines (Heckhausen, 1999, 2000; Heckhausen, Wrosch, & Fleeson, 2001; Wrosch & Heckhausen, 1999) and the ways in which individuals manage transitions associated with developmental deadlines have been conceptualized in the context of the life-span theory of control (Heckhausen & Schulz, 1995; Schulz & Heckhausen, 1996). The life-span theory of control proposes two types of control striving, *primary control*, which influences outcomes in the environment, on the one hand; and inwardly directed *secondary control*, which optimizes motivational resources, on the other hand. Control theory views individuals as agents in development who are actively striving for and disengaging from developmental goals in age-graded synchronization with waxing and waning opportunities across the life course. According to the life-span theory of control the most adaptive strategy is to make use of favorable opportunities by engaging with "on-time" goals and avoid goal engagement when opportunities have waned away or are not yet available.

Throughout life an individual confronts multiple trajectories of increasing and decreasing opportunities to attain important goals. Figure 1 displays hypothetical curves for several life goals throughout adolescence and adulthood. Note that the transition from school to work is depicted as covering a short time window, with a narrow maximum opportunity phase and steep slopes on the increasing and decreasing sides.

¹ Today, the majority of apprenticeships in East Germany and in rural areas are offered by state-run training centers and do not really provide hands-on experiences in actual production or real business. Thus, the future of the German dual system of apprenticeships is uncertain. For this and other reasons, it is doubtful whether the German system of apprenticeships is really a viable alternative to the situation of school-to-work transition in the United States, as Hamilton (1990) suggests.

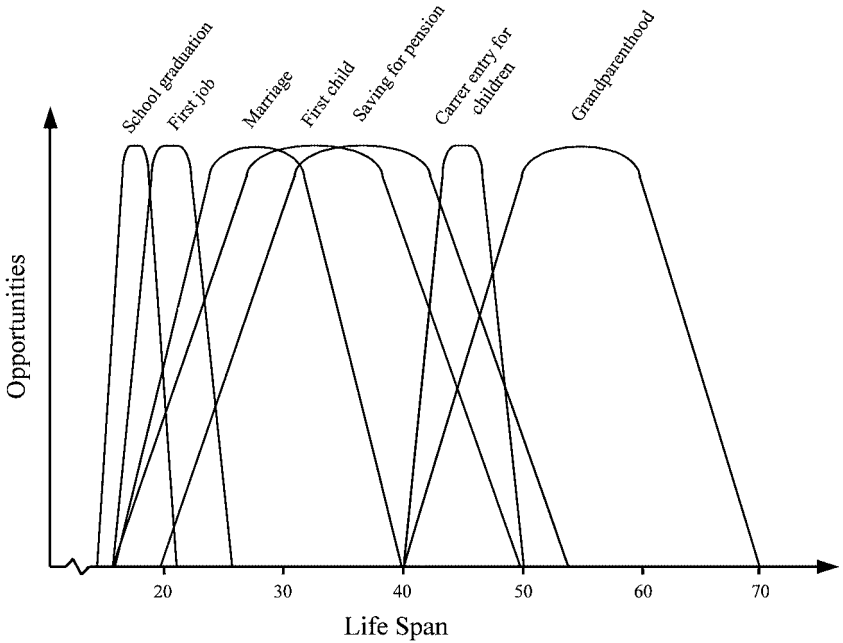


FIG. 1. Age-graded sequencing of opportunity curves for different developmental goals (hypothetical).

The affordances of goal engagement for someone who has not yet attained an on-time goal become apparent when considering adaptive patterns of goal engagement within a given goal-directed action cycle, as displayed in Fig. 2. Our model assumes that with increasing proximity to the deadline, those individuals who have not yet attained the goal experience intensified urgency and therefore can be expected to step up their engagement with the goal by investing more behavioral and motivational resources. Specifically, goal engagement should comprise the following control strategies: (1) *selective primary control* striving, that is, investing behavioral resources (time, effort, and skills) into goal pursuit; (2) *compensatory primary control*, that is, recruiting help from others and/or using unusual means or detours to attain the goal; and (3) *selective secondary control*, that is, strategies to enhance one's volitional commitment to the goal (e.g., by enhancing the goal value and enhancing control perceptions). In contrast, goal disengagement should rely on strategies of *compensatory secondary control*, which are directed at goal disengagement (e.g., devalue goal) and at self-protection (e.g., deflect self-blame and self-enhancing social comparisons).

This article focuses on the goal engagement phase and its increasing urgency as the individual approaches the deadline. This is the situation of the non-college-bound 10th grader in Germany. During the phase of high challenge and risk, when applying for apprenticeships during 10th grade, adolescents need to strike a delicate balance between their resources for obtaining an apprenticeship (e.g., school

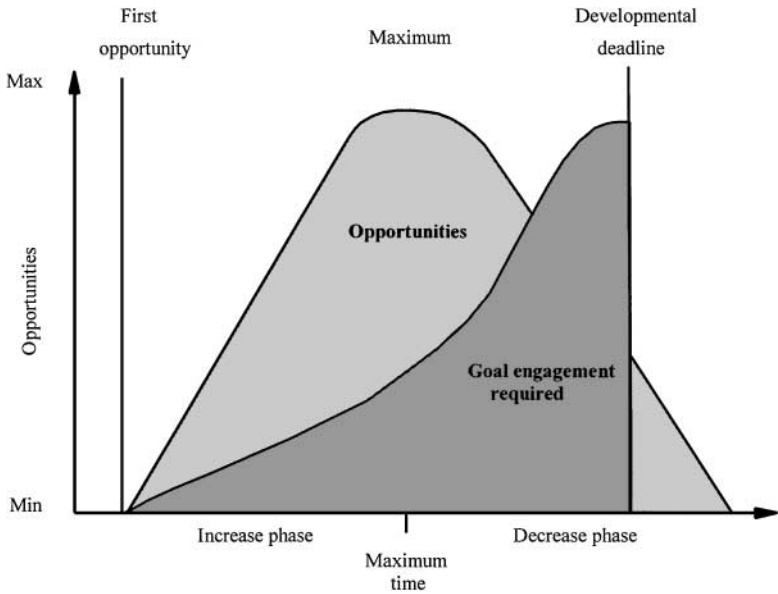


FIG. 2. Age-graded opportunity structure for developmental goals.

grades) and the aspiration for obtaining an apprenticeship in a prestigious vocation. This process involves two components, adjustment of vocational ideals (i.e., “dream job”) to vocational preferences that are based more on reality and adjustment of vocational aspirations to resources of educational achievement (i.e., school grades in Grade 10). To be adaptive, both components of adjustment can be expected to reflect not only avoidance of overaspirations but also underaspirations. The former has been the focus of interest in previous research on vocational choice in German adolescents seeking apprenticeships (Heinz, Krüger, Rettke, Wachtveitl, & Witzel, 1985; Heyn, Schnabel, & Roeder, 1997). Avoidance of underaspirations is an instantiation of long-term primary control striving; optimized vocational choice gives access to resources critical for control across the adult life span.

In the present study, adjustment of vocational aspirations to personal resources and market realities was assessed in two ways: First, adolescents need to adjust their vocational ideals, the “dream job,” to the scope of potentially accessible vocations. This process has been referred to as “compromising” in Gottfredson’s (1981, 1996) model of occupational aspirations. The compromise model proposes a convergence of vocational expectations and vocational aspirations, presumably based in reality-oriented assessment. In accordance with the compromise model, we expect that two differentially realistic indicators of vocational aspirations, namely “dream job” and “vocation I am interested in,” should converge in terms of their social prestige. Given the urgency and immediacy of consequences, our prediction is that social

prestige discrepancies between dream job and interest job will be reduced by way of adjusting the dream job.

Second, adjustments of vocational aspirations to educational achievements are investigated as indicators of developmental optimization. School grades provide the resource for entering vocational careers. In the narrow time window for securing an apprenticeship, the adolescent needs to calibrate vocational aspirations to her/his school achievements. Unwarranted or premature downscaling of one's aspiration would result in long-term vocational underattainment and thus a severely constrained access to control. In contrast, being overambitious in terms of aspiring for vocations beyond one's potential (e.g., in terms of school achievement) bears the risk of securing no apprenticeship at all and thus ruining one's economic life prospects. Thus, we expect that adolescents adjust their vocational aspirations to their academic achievement in school and show this adjustment increasingly as they get closer to the deadline of school graduation. Such adjustments to school achievement (grades) should be reflected in the vocations adolescents nominate to have an interest in, referred to as "*vocational preferences*," as well as in the vocations adolescents actually apply for, referred to as "*vocational aspirations*." More specifically, we expect that vocational aspirations (i.e., apprentices applied for) will be more closely matched to school achievements because applications are more directly linked to reality feedback than vocational preferences.

Figure 3 displays a risk choice model with its two axes of school achievement and vocational orientation operationalized by the perceived social prestige of the vocations the adolescent is interested in (vocational preferences) or has applied for (vocational aspirations). Three parameters of risk choice can be identified in this model. First, there is the dimension of *low potential* (lower left quadrant in

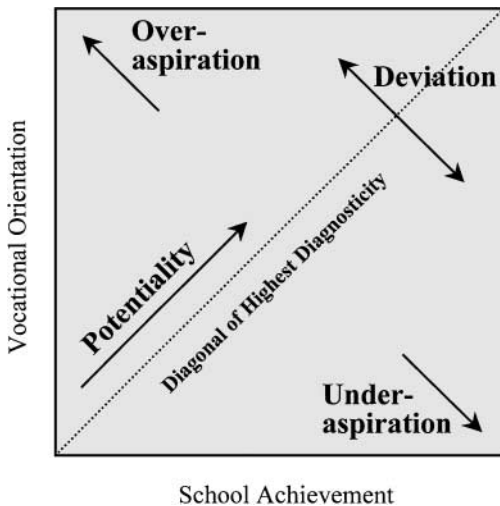


FIG. 3. Risk choice model for school achievement and vocational aspiration.

Fig. 3) versus *high potential* (upper right quadrant in Fig. 3), which captures the degree to which an adolescent has attained both high school achievement and high vocational aspiration or low levels of both.

The second parameter captures the degree to which an adolescent realizes a close *match between school achievement and vocational aspiration* (see diagonal for ideal match), thus choosing positions to apply for which require a level of school performance (school grades) that reflects her/his actual school grades. The other pole of this dimension is the avoidance of an achievement–aspiration match (see arrow orthogonal to matching diagonal), which thus deviates from the diagonal of greatest diagnosticity for optimized vocational choice (Buckert, Meyer, & Schmalt, 1979; Trope & Brickman, 1975).

The third parameter addresses the extent to which adolescents deviate from the ideal adjustment model of a match between resources and aspiration by consistently choosing either *overambitious* (upper left quadrant in Fig. 3) or *underambitious* (lower right quadrant in Fig. 3) positions. Both these combinations of achievement and aspiration are expected to be disadvantageous: Overaspiration maximizes the risk of finding no apprenticeship. Underaspiration fails to utilize the achievement resources for securing a vocational training with optimal potential for income and quality of work.

The model predicts the most adaptive strategy to be the *resource–aspiration match* strategy. When attaining a close match between school achievement and vocational preference, the adolescent neither *overaspires* nor *underaspires* in his or her vocational preference and thus optimizes his or her resource utilization of school achievement. The most optimal risk choice is achieved when an adolescent attains high school achievement that is reflected in accordingly high vocational aspirations, a constellation referred to hereafter as *high potential*.

Based on the deadline model the urgency of finding an appropriate apprenticeship should increase across the longitudinal span as the adolescent approaches the end of 10th grade and thus his or her school graduation. We therefore predict that matching between school achievement and vocational aspiration should become increasingly close across the longitudinal span.

Another aim of this study is to investigate individual characteristics in terms of demographics, motivational dispositions, and goal preferences, as well as preferred control strategies, which are associated with specific positions (i.e., as indicated by the three parameters, potential, matching, and over- or underaspiration) in the risk-choice model. We expect that favorable family background in terms of parental educational attainment will facilitate adaptive matching between achievement and aspiration. Moreover, stronger nonachievement motives (affiliation and power) may distract the adolescent from optimizing his/her aspiration in view of his/her school achievement resources. Finally, research about implicit motives has shown that highly structured situations leave less room for the effect of implicit motives to affect behavior than less structured situations (McClelland, Koestner, & Weinberger, 1989). Thus, adherence to normative patterns of school-to-work transitions can be expected to dampen the influence of interindividual differences in

motive dispositions. Given that boys are probably more tightly scaffolded by normative expectations about vocational choice, the influence of motive dispositions will most likely be stronger in girls compared to boys.

METHOD

Sample

Four high schools in the eastern and western part of Berlin, Germany, were identified to serve either lower class (one school in each part of Berlin) or lower middle class (one school in each part of Berlin) residential areas (see governmental census data, *Senatsverwaltung für Gesundheit und Soziales*, 1990). Overall, $N = 470$ 10th grade students from two subsequent cohorts took part in the study. The present investigation involved a subsample of 10th graders who had reported having applied to at least one vocational training position during the school year. This subsample of 335 students was carefully screened for multivariate outliers on the variables examined in this article, using Mahalanobis distance with a $p < .001$ criterion (Tabachnik & Fidell, 1996). Thus, 34 outliers had to be deleted, leaving for further analysis 301 cases, 160 (53.2%) males and 141 (46.8%) females. The distributions of age ($M = 17.31$, $SD = 0.69$) and sex of this subsample did not differ significantly from the total sample.

Procedure

As part of a larger ongoing longitudinal study spanning 9th and 10th grade as well as the years following school graduation, students were assessed five times in intervals of 2 months during 10th grade. Data was collected in regular classroom sessions that were led by two interviewers and lasted approximately $1\frac{1}{2}$ h. Each participant received a small gift (sweets and toy) after completing the questionnaire. Due to the obligatory character of school attendance, low dropout was observed. In the total sample 56.4% of the students participated in all five measurements, another 27.2% in four, 7.9% in three, and only 8.5% in less than three measurements. Selectivity analysis for the sample of participants with missing data revealed no systematic bias in the variables of interest.

The analyses described below—if not explicitly stated otherwise—were based on cross-sectional data gathered at the very last of five measurement occasions. This time point at the very end of the school year represents an important marker in the urgency phase of goal commitment. At the end of the 10th grade the opportunities for improving one's school grades have passed and application deadlines have either been passed or they are imminent.

Variables

The questionnaire included measures on personal goals, vocational orientations and incentives, control strategies and control beliefs, social networks, attitudes toward work life, and psychological well-being. In this article, findings from selected variables are reported, specifically addressing school achievement, vocational aspiration, motivational orientation, and demographic characteristics.

The students' grades in mathematics, German, English, and history served as an indicator for *school achievement*. The grades for these four subjects as well as their interactions were entered in a multiple-regression model before taking into account other predictors, thus allowing for *differential weights* of the four grades for the two cohorts and four schools. This method is superior to simply averaging achievement measures from different school settings over several disciplines. Theoretical models in educational psychology (Marsh, 1990; Marsh, Byrne, & Shavelson, 1988; Shavelson, Hubner, & Stanton, 1976) suggest that it is more appropriate to predict outcomes from domain-specific rather than global achievement indicators.

Students were requested to indicate which apprenticeship positions (i.e., which vocations) they were interested in and which they applied for. In order to estimate social prestige of the vocations involved, a social prestige scale was used that had been developed in a separate study assessing the perceived social prestige of 128 vocations frequently nominated in a larger sample, including the subjects of the present study. The students rated the occupations according to "the prestige, they have in our society right now." We chose to base our estimates of perceived social prestige of vocations on ratings provided by adolescents facing the school to work transition because these ratings can be expected to more validly reflect these adolescents' vocational conceptions than ratings gathered in a general representative sample of German adults (cf. Wegener, 1992).

Medium correlations between the herein applied and other published scales (e.g., $r = .60$ with Wegener's Magnitude Prestige Scale) show that the Apprenticeship Prestige Scale reflects both common societal perceptions of occupational prestige and its sub-group-specific "biases" (for details, see Tomasik & Heckhausen, in preparation). For further analysis, the mean social prestige of (a) vocation interested in (i.e., *vocational preference*), (b) the vocation for which the subject had sent an apprenticeship application (i.e., *vocational aspiration*), and (c) of the "dream job" (i.e., *vocational ideal*) were computed.

For the assessment of *motivational dispositions* two different approaches were used. The assessment of explicit motives was based on the *Brunstein Inventory* (Pöhlmann & Brunstein, 1997), which elicits self-reports on the perceived importance of different motivational domains for one's own life. High agreement on the item "It is important for me to improve constantly," for example, is interpreted as an indicator for high achievement motivation. Implicit motives were assessed by the *Projective Multi Motive Test* (PMMT; Kuhl, 2000; Kuhl & Scheffer, 1999; Kuhl & Scheffer, 2001). The PMMT consists of seven ambiguous drawings representing different social situations. Subjects were requested to provide short handwritten answers to the following questions: "What is going on here?," "Who is the main character in the episode depicted?," "How does the main character feel?," and "How does the episode end?" The written responses were then coded with regard to several components of three motives, achievement, power, and affiliation, reflecting different modes of approach and avoidance (e.g., flow motivation and fear of failure as two components of the achievement motive). The interrater reliability

of the PMMT measures was above $\kappa = .85$ (see Kuhl & Scheffer, 2001). We used both assessment paradigms to reflect both implicit and explicit (or self-attributed) components of motivational dispositions (McClelland, Koestner, & Weinberger, 1989; Spangler, 1992).

Personal goals as indicators of nondispositional motivational orientations were assessed by free nomination of five personal goals. The goals were coded thematically into the categories education, occupation, family, independence, self-realization, possession, and other. For each category, a dichotomous variable was computed that reflected whether a respective goal domain was mentioned at least once. In addition, *future goal perspective* was assessed and entered the analyses as the mean age of expected goal attainment calculated across all reported domains. Implicit motivational dispositions and the personal goal structure are considered comparatively persistent motivational orientations and were, unlike all other variables, collected only once in the first of five measurement occasions at the very beginning of the school year.

Primary and secondary *control striving* was assessed by domain-specific Optimization in Primary and Secondary Control (OPS) scales (Heckhausen, 2000; Heckhausen, Wrosch, & Fleeson, 2000; Heckhausen, Schulz, & Wrosch, 1998; Wrosch & Heckhausen, 1999) for the domain of apprenticeship seeking. Using domain-specific OPS scales has advantages in that the domain-specific control strategies are responsive to changes in the respective domain's action opportunities (Heckhausen, Wrosch, & Fleeson, 2001; Wrosch & Heckhausen, 1999). *Positive affect* was measured by a German translation of the PANAS (Watson, Clark, & Tellegen, 1988). In terms of sociodemographic data, the *educational background of the parents* was assessed by their total years of schooling and vocational education. Two corresponding items measured perceived *worry* about and *burdening* by the transition.

Missing values were replaced using an expectation-maximization (EM) algorithm that produces unbiased estimates of first and second order moments in the distributions (Little & Rubin, 1987). All variables were z standardized for better interpretability. Social prestige scores, however, were retained in the scale's original T standardization.

RESULTS

Adjustment of "Dream Job"

Three groups of subjects were identified, based on the individual discrepancy at the first measurement occasion between the social prestige of vocational desire (i.e., "dream job") and vocational preference (i.e., "the job that interests me") nominated by the students. *Group 1* ($N = 155$) comprised subjects who, during the first assessment at the beginning of Grade 10, had reported vocational ideals (i.e., dream jobs) with somewhat higher social prestige than their vocational preferences (i.e., vocations interested in). *Group 2* ($N = 57$) contained those subjects whose vocational ideals exactly matched their vocational preferences in terms of social prestige. *Group 3* ($N = 89$) contained those subjects whose

TABLE 1
Estimated Factor Means and Variance Components in the Linear Latent Growth Model

| Coefficient | Group 1 (<i>N</i> = 155) | Group 2 (<i>N</i> = 57) | Group 3 (<i>N</i> = 89) |
|------------------------------|------------------------------|-----------------------------|-----------------------------|
| Mean of intercept factor | 57.93 (.49) | 52.38 (1.05) | 50.59 (.72) |
| Mean of slope factor | -1.22 (.22) | -.04 (.33) | .81 (.37) |
| Variance of intercept factor | 37.89 (5.65) | 57.12 (12.29) | 49.96 (8.48) |
| Variance of slope factor | 10.03 (2.04) | 6.53 (3.14) | 14.44 (2.64) |
| Covariance intercept slope | -5.18 (2.13) | 3.19 (3.39) | -10.13 (3.32) |

Note. Standard errors of coefficients are printed in brackets.

vocational ideals fell short of their vocational preferences in terms of social prestige. The unequal group sizes presented no methodological problems for the following computations.

Latent growth models (McArdle & Epstein, 1987; Meredith & Tisak, 1990; Muthén, 1991) were estimated using LISREL 8 (Jöreskog & Sörbom, 1989, 1993) for tracking the adjustment of vocational ideals based on the observed covariance matrix and a column vector of means. A multigroup approach was chosen in order to reflect the underlying hypothesis about differential adjustments in the three groups. The present growth model comprises two latent factors representing the *intercept* and the *linear slope* of the latent growth curve. To ensure parsimony and thus feasibility of model estimation, only three measurement occasions, at the very beginning, the middle, and the very end of the school year, were analyzed. This model was found to fit the observed data very well, (χ^2 , $N = 301$) = 3.51, $p = .32$, TLI (Tucker-Lewis Fit Index; Tucker & Lewis, 1973) = 1.00, CFI (Comparative Fit Index; Bentler, 1990) = 1.00, RMSEA (root mean square error of approximation; see Browne & Cudeck, 1993) = 0.04, and was thus accepted. The results in terms of parameters and their corresponding standard errors obtained for the three latent curves are presented in Table 1 and are discussed below for the three groups separately.

Group 1. A significant negative mean of the slope factor ($\mu = -1.22$; $z = 5.55$) indicated a substantial linear downgrading of the vocational ideals in terms of social prestige. The variance components of both the intercept ($\psi = 37.89$; $z = 6.71$) and the slope ($\psi = 10.03$; $z = 4.92$) were significant, indicating substantial interindividual variation in both level and change over time. The significant negative correlation between intercept and slope ($r = -.27$; $p < .05$) suggests that the slope of downward adjustment was steeper the higher the initial level of vocational ideal.

Group 2. For Group 2 the slope did not differ significantly from zero ($\mu = -.04$; $z = 0.12$). The significant variance component in the intercept factor ($\psi = 57.12$; $z = 4.65$) indicates variability in initial vocational ideal's prestige. There was no significant correlation between level and slope.

Group 3. The findings for Group 3 follow an inverse pattern to the results of Group 1. The mean of the slope factor was significantly positive ($\mu = .81$; $z = 2.19$),

indicating a linear increase in vocational ideal over time. Highly significant variance components in both the intercept ($\psi = 49.96$; $z = 5.89$) and the slope ($\psi = 14.44$; $z = 5.47$) represent substantial interindividual variation in both the level and the change of desired job prestige over time. A significantly negative correlation between initial level and slope ($r = -.38$; $p < .01$) suggests that lower initial levels were associated with steeper increases in vocational ideal's prestige.

Construction of the Risk Choice Model

When investigating the relationship between school grades in the four subject areas (mathematics, German, English, and history) and vocational aspirations, it became clear that for different schools and the two cohorts, different subject areas bore greater weight in their relationship with vocational aspirations. To allow for such variation in the predictive significance of the four subject areas, three hierarchical multiple-regression models have been set up. In the first model, the main effects (grades and dummy coded school and cohort affiliation) have been entered; the second and third models are considered the first and second order interactions between these three variables respectively. The final models accounted for 51.6% of vocational preference (i.e., vocations for which interest was expressed) and for 50.2% of variance in vocational aspiration (i.e., vocations applied for). The contiguity between resources (weighted school grades) and aspiration (or preference) can be represented graphically in bivariate scatter plots as illustrated in Fig. 4 for

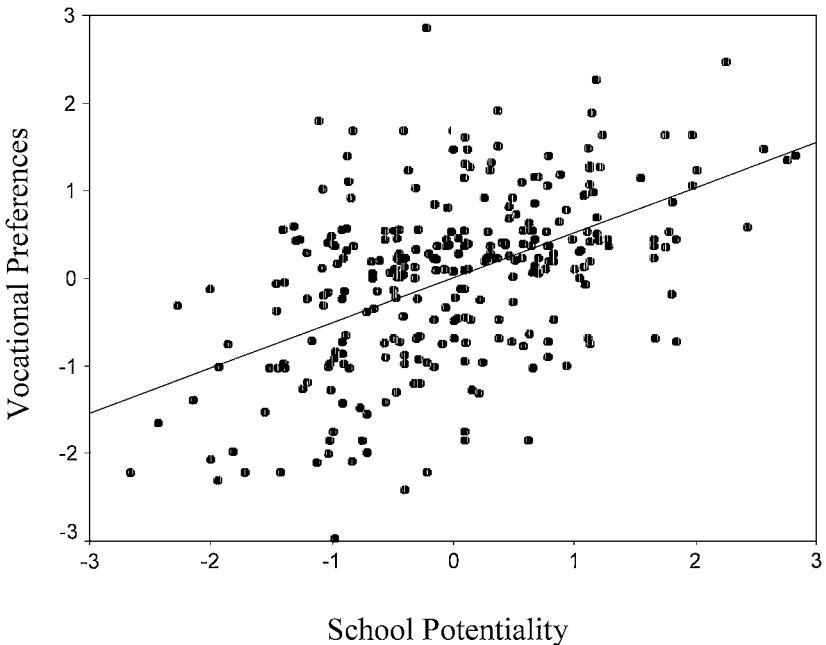


FIG. 4. Bivariate distribution of school achievement and vocational preference.

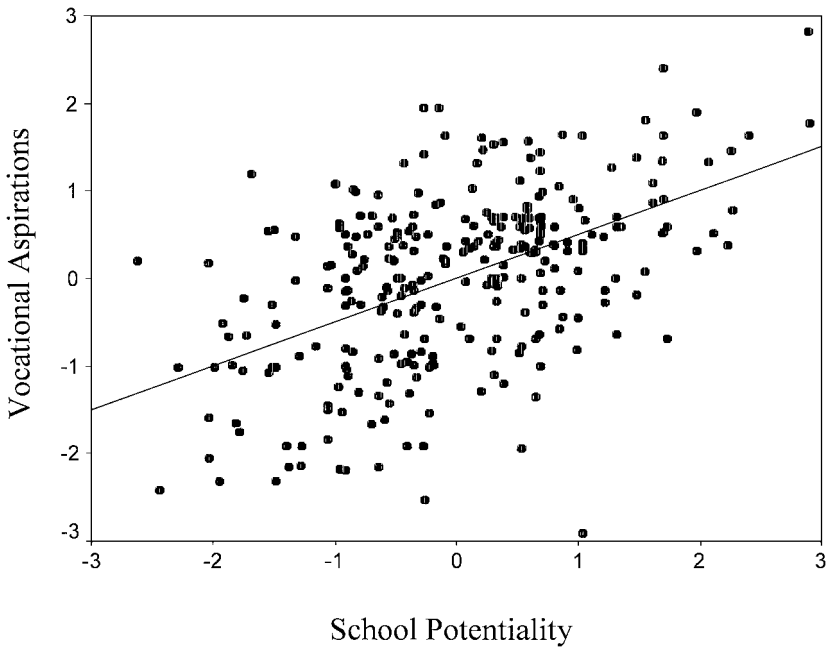


FIG. 5. Bivariate distribution of school achievement and vocational aspiration.

vocational preferences and Fig. 5 for vocational aspirations. The diagonal describing resources–aspiration congruence for the entire sample has been defined as the least squares regression line of the weighted school grades and the mean vocational aspiration (or preference). The data points distributed around the diagonal indicate more or less deviation from, or different degrees of, over- and underaspiration.

Investigation of a potential increase in predictive relations between school achievement and vocational preference/aspiration across the longitudinal span revealed no differences between measurement points. The degree of achievement–aspiration match was stable across Grade 10.

Correlates of Three Parameters of Risk Choice in Vocational Aspiration and Preference

The three parameters characterizing the position on the achievement–aspiration continuum were high versus low potential, degree of matching between school achievement and vocational aspiration, and over- versus underaspiration. The correlations between these three parameters and variables of motivational orientation, control strategies, and family background were investigated for males and females separately. This gender-specific approach was used because the patterns of correlations differed substantially between genders. Table 2 presents the correlations between variables of motivational orientation, control strategies, and family background and the three parameters of risk choice on the achievement–aspiration

TABLE 2
Psychological Correlates of the Position in the Risk Choice Model

| Position variable and construct | Vocational aspiration | | | Vocational preference | | |
|---|-----------------------|---------|-------------------------|-----------------------|---------|-------------------------|
| | Males | Females | Difference ^a | Males | Females | Difference ^a |
| Potentiality | | | | | | |
| PMMT: Need for achievement | -.05 | .29** | -2.99** | -.04 | .26** | -2.61** |
| PMMT: External achievement standards | -.10 | .23** | -2.87** | -.09 | .27** | -3.15** |
| PMMT: Need for affiliation | -.22** | -.15 | -.62 | -.25** | -.16 | .81 |
| OPS: Goal disengagement | -.10 | -.25** | 1.33 | -.02 | -.19* | .45 |
| Appreciation for affiliation | .24** | -.20* | 3.84*** | .23** | -.12 | 3.04** |
| Appreciation for intimacy | .24 | -.08 | 2.78** | .20** | -.14 | 2.95** |
| Likelihood of affiliation (work life) | .15 | -.17* | 2.77** | .12 | -.13 | 2.15* |
| Likelihood of intimacy (private life) | .28*** | .01 | 2.38** | .26** | -.03 | 2.54** |
| Likelihood of intimacy (work life) | .26** | .05 | 1.85* | .19* | .02 | 1.45 |
| Likelihood of altruism (private life) | .25** | .03 | 1.93* | .23** | -.04 | 2.35** |
| Likelihood of diversity (private life) | .20** | -.24** | 3.84*** | .18* | -.24** | 3.66*** |
| Years of education: Mother | -.28** | .13 | -3.59*** | -.21** | .08 | -2.51** |
| Goal nomination: Occupation | -.19* | .11 | -2.49** | -.23** | .05 | 2.44 |
| Absolute deviation | | | | | | |
| OPS: Negative trade-offs | -.16* | -.09 | -.61 | -.25** | -.13 | 1.06 |
| OPS: Selective primary control | .05 | -.07 | 1.03 | -.21** | -.08 | -1.14 |
| OPS: Seeking help and advice | -.20* | -.02 | -1.57 | -.21** | .02 | -2.00* |
| OPS: Making detours | .10 | -.05 | 1.29 | -.23** | -.01 | -1.92* |
| Appreciation for achievement | -.03 | .23** | -2.26* | .07 | .04 | .26 |
| Future goal perspective | -.02 | -.02 | .00 | .36*** | .07 | 2.62** |
| Perceived burdening | -.25** | -.01 | -2.10* | -.08 | -.06 | -.17* |
| Relative aspiration/preference level | | | | | | |
| PMMT: Intimacy motivation | -.15 | -.09 | .52 | -.14 | -.22* | .71 |
| OPS: Selective secondary control | -.15 | -.09 | .52 | -.24** | -.06 | 1.58 |
| Appreciation for financial security | .01 | .23** | -1.92* | .01 | .09 | -.67 |
| Worrying | .20** | .16 | .35 | .28*** | .14 | 1.26 |
| Perceived burdening | .23** | .09 | 1.23 | .24** | .15 | .80 |
| Years of education: Father | .12 | -.05 | 1.46 | .22** | .06 | 1.40 |

Note. Correlation coefficients for $N = 160$ male and $N = 141$ female students.

^a The z value of the difference between gender-specific correlation coefficients.

* $p < .05$.

** $p < .01$.

*** $p < .001$.

continuum. The table contains correlations pertaining to both vocational preference and vocational aspiration.

When interpreting these findings it is essential to bear in mind that correlations need to be interpreted as relationships pertaining to the entire value range of the variables because they represent linear tendencies in bivariate relationships. Hence, for example, when higher positive affect in males is related to overaspiration, strong positive affect is associated with overaspirations, the mean level of positive affect corresponds to a match of achievement and aspiration, and low positive affect is associated with underaspiration.

Males' potentiality. For male students high potentiality in vocational aspiration correlates with stronger positive affect and higher appreciation of intimacy and affiliation. Boys with high potential view intimacy goals as more likely to be accomplished both in private and in work life. They regard altruism goals as more accessible in private life. High potential students, however, express less implicit affiliation motive, and their mothers have fewer years of formal education.

For the analyses using vocational preferences, the correlation pattern with high potentiality is very similar to the one obtained for vocational aspirations, except that the likelihood of obtaining intimacy and altruism goals in family life was unrelated to high potentiality, whereas the likelihood of obtaining affiliation goals in work life was related. Moreover, in this analysis based on vocational preferences, high potential students were less inclined to nominate occupational goals as one of their personal goals.

Males' absolute deviation from the diagonal. For the analyses based on vocational aspirations, the only variable that (negatively) correlated with male's absolute deviation was perceived burdening by apprenticeship seeking. Thus, those boys who perceived the least psychological burdening were more likely to match their vocational aspirations to their school achievements. The analyses based on vocational preferences yielded a richer set of predictor variables emerged. A less pronounced tendency to consider negative trade-offs between different domains of functioning, as measured by a subscale of the optimization scale in the OPS questionnaire, is correlated with higher deviation from the matching diagonal (OPS; $r = -.25$; $p < .01$). Deviations from matching achievement and vocational preferences also correlate negatively with selective primary control (OPS; $r = -.21$; $p < .01$) and with both component scales of compensatory primary control, that is, seeking help and advice (OPS; $r = -.24$; $p < .01$) and making detours in one's striving for goal attainment (OPS; $r = -.23$; $p < .01$). Boys who do not match their vocational preferences to their school grades also tend to have substantially extended future time perspectives for their personal goals ($r = .36$; $p < .001$).

Males' relative aspiration/preference level. Overaspiration in both vocational preference and aspirations is associated with greater worry about finding a training position. Similarly, feeling burdened by the transition from school to work went along with overaspiring vocational preferences. Selective secondary control is greater when vocational preferences represent underaspirations. Education of the

father ($r = .22$; $p < .01$), but not of the mother ($r = -.01$; ns), is associated with overaspiration in vocational preference.

Females' potentiality. The pattern of predictors for the aspiration risk choice parameters of female students was quite distinct from that pertaining for male students. For girls, higher potentiality is related to a high implicit motive for achievement, especially in terms of general need for achievement (for vocational aspiration analyses) and the valuation of socially transmitted standards of aspirations (for vocational preference). In concordance with this, high potential (for vocational aspiration analyses) girls were less inclined to use compensatory secondary control strategies in terms of goal disengagement and less expected to experience diversity of activities at work.

Females' absolute deviation from the diagonal. Higher explicit achievement motivation was associated with higher deviation from optimal matching school performance and vocational aspiration.

Female's relative aspiration level. Girls' overaspirations were associated with a greater need for financial security. Females motivated by intimacy (in the sense of reciprocal love and affection) tended to underaspire in their vocational preferences.

DISCUSSION

The findings show that in accordance with our prediction, social prestige of the "dream job" was downgraded with increasing proximity to the deadline by those adolescents who held vocational ideals that exceeded the more reality-based vocational preferences at the beginning of Grade 10. Moreover, upward adjustments of vocational ideals were found for those adolescents who had entertained "dream jobs" at the beginning of Grade 10 that fell short of their vocational preferences in terms of social prestige. This implies that vocational ideals and dreams did not only become more sober and less glorious with the actual transition moving closer, but also that social prestige itself probably became a more important aspect of the adolescents' vocational choice. In the process of applying for apprenticeships, the adolescents may have realized that important dimensions of social prestige, such as income, career prospects, and work autonomy, need to be taken into account when choosing a long-term vocation. In comparison, characteristics more intrinsic to the vocational activities may have lost some of their central or even exclusive role for determining the attractiveness of a vocation. For instance, a girl might have dreamed of becoming a horse-trainer because of the intrinsic benefits this vocation provides in terms of interacting with her favorite animal species, yet when addressing the issue of actually applying for an apprenticeship, she might have realized that this vocation holds little promise for income and career, thus motivating her to disengage from it to the benefit of a more promising vocation.

It is worth noting that the slope of upward and downward adjustment of "dream job" was steeper with greater difference, negative and positive respectively, between the social prestige of the vocational ideal and the vocational preference. Since this finding is based on nominal data (nomination of occupations), it is not attributable to a regression-to-the-mean artifact. This lends further support to

the assumption that this adjustment of vocational ideals substantially represents a reality-oriented compromise rather than some ubiquitous trend.

The dual adjustment of vocational ideals, downward and upward, extends existent research on Gottfredson's model of compromising in occupational aspirations in two ways. First, our assessment of vocational ideal ("my dream job") and vocational preference ("the vocation I am interested in") is different from previous empirical investigations, which have operationalized aspirations as "job you would really like to have when you are 35 years of age" and expectations as "job you expect to have when you are 35 years old" (Armstrong & Crombie, 2000; Davey & Stoppard, 1993; Farmer, 1983; McNulty & Borgen, 1988; Young, 1984). In our study, both indicators, dream job and interest job, reflected vocational preference, yet still convergence toward the less wishful and thus probably more realistic indicator, was observed. This speaks to the pervasiveness of compromising with reality as a basic process involved in vocational orientation during the transition to adulthood.

Second, adjustments of vocational ideals were observed not only across long periods of time such as across school grades, as in previous research (see, e.g., Armstrong & Crombie, 2000), but indeed during shorter intervals of time within a school year. In particular, the adjustments were reported during the year just preceding the transition into work life, when the students were actively engaged applying for apprenticeships and thus experiencing the immediate feedback from potential employers. This finding supports the validity of the deadline model of developmental regulation for the transition from school to work, at least in the context of the German apprenticeship system for vocational training.

Strong evidence was obtained for the prediction that adolescents use a strategy of matching vocational aspirations to their school achievement (see also Schoon & Parsons, 2002, this volume). About 50% of the variance in social prestige of reported vocational interests and applications for apprenticeships was accounted for by school achievement. Given that employers use school grades as the key indicators of achievement potential, this strategy is most effective in maximizing longer term resource investment payoffs. Matching vocational aspirations to one's school grades means that one aims at maximizing the return benefits of one's school achievement in terms of vocational attainment by avoiding both over- and underaspiring.

It is important to take into account that this strategy of pragmatic resource use may in many cases have to come up against vocational preference based on individual differences in motives and interests (see also Krapp, 2000; Rheinberg, Vollmeyer, & Burns, 2000). Moreover, the close matching between vocational aspirations and school achievement is even more impressive when one considers the fact that applications for apprenticeships are typically sent in response to opportunities on the apprenticeship market, such as announced positions and preset application dates. This may also account for the fact that we did not observe an increase in matching between school achievement and vocational aspirations across the longitudinal span, which we had expected as indicating increasing

urgency and reality orientation in the apprenticeship search. The time structure of opportunities for applying to specific apprenticeships may well have masked the expression of a psychological phenomenon such as increasing urgency.

As for the gender differences in the three parameters within the risk choice model, potentiality, matching, and over-/underaspiring, the patterns of predictors for girls and boys were very different. For boys, high potential in school performance and vocational aspiration was associated with several indicators of explicit motivation for affiliation, but not with implicit affiliation motive. This pattern stood in sharp contrast to the one obtained for girls, which focused on high implicit achievement motive and goal engagement. Thus, high achievers of both genders expressed motivational orientations that were inconsistent with their respective gender stereotypes.

Another way to look at this pattern is to interpret the boys' motivational orientation as including the potential to build a family and become a breadwinner, an orientation which focuses on the pragmatics of life, rather than on the intrinsic potential of occupational achievement. High achieving girls, on the other hand, seem to thrive based on high intrinsic motivation rather than because of an instrumental or pragmatic approach to academic and occupational achievement. This interpretation is corroborated by the findings pertaining to other parameters of risk choice in vocational aspirations. Matching school achievement and vocational aspiration is a case in point because close matching implies adaptive risk choice in terms of long-term pragmatic implications, potentially at the expense of intrinsic motivation and interest for a given vocational track. Boys and girls exhibited inverse patterns here too. It was the girls with high implicit achievement motivation who matched their vocational aspirations less to their school performance, thus showing less concern for pragmatic implications of vocational choice. For the boys, the highly goal engaged (indicated by goal engagement control strategies) and those who perceived the search for an apprenticeship as a burden were the ones who matched their aspirations to their school performance. Interestingly, those boys who entertained particularly long-term goal perspectives were less likely to match their vocational aspirations.

Finally, with regard to over versus underachievement, girls with high implicit affiliation motive were underaspiring, and those who had explicit goal orientations towards financial security were overaspiring. For boys, the pattern reflected greater worry and burdening for those who aspired beyond their school achievements, with overaspiring itself being associated with more educated and therefore potentially more ambitious fathers.

In sum, this study investigated developmental regulation in the school-to-work transition under conditions of institutionalized opportunities, which are highly structured in terms of timing and deadline for active investment. Our findings support the applicability of the developmental deadline model to the school-to-work transition in German adolescents. The adolescents demonstrated an impressive competence for developmental regulation in a highly challenging and most consequential developmental transition. As they approached the deadline of school

graduation, the adolescents increasingly adjusted their vocational ideals to more realistic vocational preferences.

Moreover, the adolescents followed a strategy of resource–aspiration match in that they adjusted the level of social prestige aimed for in their vocational aspirations as the developmental deadline of school graduation drew closer. Variations to this matching strategy in terms of over- and underaspiration and in terms of absolute deviations from the ideal match were associated with distinct patterns of predictors for boys and girls. For boys the most adaptive patterns were associated with goal engagement and explicit goal orientations toward affiliation, thus potentially reflecting a pragmatic strategy toward building a family and becoming a breadwinner. This would imply that these boys were extrinsically motivated for vocational investment, using a vocational choice more as an instrument for other goals than as a goal in itself. In direct contrast to this instrumental motivational orientation, high achieving girls and girls who matched their vocational aspirations to their school performance were committed to high achievement motivation, both in terms of implicit motives and explicit motivational commitment. Thus, in contrast to the boys, these girls were sharply deviating from a traditional female role model and wholeheartedly (implicit and explicit commitment) invested in optimizing achievement in a vocational career. It is fascinating to consider the question of whether this pattern of gender differences is characteristic of those who have no college education or may be found for college-based career entries too.

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