

**Pathways to successful entrepreneurship: Parenting, personality,  
early entrepreneurial competence, and interests**

Eva Schmitt-Rodermund

University of Jena

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Eva Schmitt-Rodermund, Ph.D.  
University of Jena  
Developmental Psychology  
Am Steiger 3/1  
D-07743 Jena  
Germany  
Fon: +49-3641-945207  
Fax: +49-3641-945202  
Email: [svs@uni-jena.de](mailto:svs@uni-jena.de)

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## Abstract

Personality traits and parenting may relate to entrepreneurial competence (EC) and entrepreneurial interests (EI), which both are central elements of Holland's E-type. 320 10<sup>th</sup> grade students, and 139 small business founders from East Germany were studied using structural equation modeling. Results showed that an entrepreneurial personality (low agreeableness and neuroticism, high extraversion, openness and conscientiousness), and authoritative parenting were linked to adolescent EC in both samples. EC predicted stronger EI, which in turn related to entrepreneurial career prospects in the students, and to an earlier timing of the first business start-up in the founders. Concerning entrepreneurial success, an early start-up and an entrepreneurial personality of the founder were both found to be beneficial. The discussion concentrates on two implications of the findings: Bank professionals dealing with venture capital loans would profit from a more thorough assessment of personality traits and programs to foster entrepreneurship should address adolescents in addition to adults.

## Pathways to successful entrepreneurship: Parenting, personality, early entrepreneurial competence, and interests

Successful entrepreneurs appear to differ from other people starting early in life. At least that is the story told in biographies of many successful business founders. More systematic evidence from retrospective reports also supports the view that the success of business founders stems from entrepreneurial activities and characteristics as an adolescent or even child. Although many researchers agree that there is a link between early qualities of individuals and their later work performance, in the case of entrepreneurial success the evidence has been scarce. The present study, therefore, investigated whether early precursors of successful entrepreneurial careers could be identified. More specifically, the role of early, self-reported entrepreneurial competence in the process of starting a business was explored. For this purpose, two separate data sets were analyzed, one consisting of adolescents aged between 14 and 17, and the other of adults who had recently started their own business in East Germany.

Entrepreneurs are known for what they do: They create new products, processes and services for the market. In general, entrepreneurs can be defined as individuals who bring about an improvement, both for other individuals and for society as a whole (Hisrich & Peters, 1989). Much more difficult to answer is the question of who entrepreneurs are and how they become what they are (Gartner, 2001, Hisrich, 1990). Entrepreneurs can be identified in all sorts of professions and are active in many different ways. Nevertheless, they seem to have some characteristics in common that have been shown consistently throughout a wide range of studies. In reviewing the findings, most of which result from comparisons between entrepreneurs and

others, the following list can be derived: Entrepreneurs seem to have a high need for achievement, show creativity and initiative, are risk takers and self-confident, have an internal locus of control, need independence and autonomy, accomplish their tasks with great energy and commitment, and, finally, are persistent in following their aims (for overviews see Stewart, 1996, Brockhaus & Horwitz, 1986; Chell, Haworth & Brearley, 1991).

Concerning how entrepreneurs develop, Holland's RIASEC vocational personality model (Holland, 1985) provides useful insights. He described and assessed six vocational personality types, each with a different set of work-related characteristics, abilities, and interests. One of these is the Entrepreneurial (E-) type. An individual is considered entrepreneurial when he or she displays entrepreneurial competence along with a preference for enterprising activities.

Entrepreneurial types flourish in work environments that involve and reward the ability to convince, direct, and manipulate others, competition, initiative in the pursuit of financial or material accomplishment, dominance, self-confidence, and a sense for managerial, sales, and business-related issues (Holland, 1985). Although not all E-types become successful entrepreneurs, yet most entrepreneurs display E-typical interests, abilities, and behaviors.

Holland assumed that the development toward a certain type, and, thus, ideally, into a certain career, is fueled by two different sources that are in a constant interplay. One source is the set of characteristics children are born with, ranging from their sex to basic personality traits. The second comprises contextual input. Parents who encourage and reinforce certain activities, and provide opportunities, support, and resources to pursue them, help children to develop interests, preferences, and competencies: "A child's special biology and experience first lead to preferences for some kinds of activities and aversions to others. Later, these preferences become well defined

interests from which the person gains satisfaction as well as reward from others. Still later, the pursuit of these interests leads to the development of more specialized competencies as well as to the neglect of other potential competencies” (Holland, 1985, p. 16). The increasing differentiation of vague interests into specific dispositions, as Holland calls them, is accompanied by the development of a characteristic repertoire of skills and coping mechanisms, which include values as well as self-concepts.

This view fits nicely with the Social-Cognitive Theory of Career and Academic Interests, Choice, and Performance (Lent, Brown, & Hackett, 1994). In the tradition of Bandura’s self-efficacy model (Bandura, 1986), the authors show that expectations about performance in a given field direct interests, effort expenditure, and persistence in the face of obstacles, and, thus, guide experience. Mathematical self-efficacy, for instance, feeds directly into interests, academic and career choices, and achievement (Lent, Lopez, & Bieschke, 1993; Hackett & Betz, 1989; Lopez, Lent, Brown, & Gore, 1997). Applying this perspective to Holland’s E-type, high expectations about entrepreneurial competence, or entrepreneurial self-efficacy, may be a precursor of strong entrepreneurial interests and, thus, entrepreneurial career prospects.

Given that expectations about entrepreneurial competence are indeed the entry port for entrepreneurial interests and decisions, which personal and environmental characteristics are likely to promote such a view of the self? In following Holland’s perspective, attention should be addressed to personality traits and to the family of origin. With regard to personality, De Fruyt and Mervielde (1997) and others (Costa, McCrae, & Holland, 1984; Gottfredson, Jones, & Holland, 1993) have shown that Holland’s E-type relates to four dimensions in the Five Factor Model of Personality. Higher entrepreneurial interests and potential relate to higher levels of

conscientiousness and extraversion and to lower levels of agreeableness and neuroticism. There were no differences found for intellectual openness. This is no surprise, given that the E-type group included managers or sales people rather than entrepreneurs. With the comparison restricted to entrepreneurs, openness is very likely to be higher than among other E-types. Entrepreneurs have been shown to be more creative and innovative than employees (Engle, Mah, & Sadri, 1997). Taken together, it can be hypothesized that children and adolescents with such a profile may also report entrepreneurial competence.

The second key to self-assigned, early entrepreneurial competence may lie in the context within which an individual develops. A form of parental behavior that provides support and rules while simultaneously granting autonomy is known as authoritative parenting (Baumrind, 1991). Such parenting relates to exploratory activities (Kracke, 1997; Schmitt-Rodermund & Vondracek, 1999), achievement orientation (Leung & Kwan, 1998; Aunola, Stattin, & Nurmi, 2000), self-confidence, an internal locus of control (Schneewind, 1995), and self-efficacy (Juang & Silbereisen, 1999). All variables on this list have been found to be higher in entrepreneurs (Stewart, 1996; Chell, Haworth, & Brearley, 1991). Even if authoritative parenting promotes performance, self-efficacy, and a broad scope of interests in general, it may be of particular importance for the development of expectations about entrepreneurial skills: Authoritative parents' behavior supports self-confidence, autonomy, leadership, and the feeling of being in control, and thus helps adolescents to develop a strong sense of industriousness and independence, both very likely signs of early entrepreneurial qualities. Although such characteristics may be beneficial for many jobs, entrepreneurs without these qualities are not likely to succeed, if they become self-employed in the first place. It seems safe to assume that authoritative parenting promotes self-efficacy in general and expectations about entrepreneurial competence in particular.

Another important input coming from the family is the parental model. Although Holland does not state this possibility explicitly, he assumes that parents' occupations often match children's types due to either the heritability of temperamental characteristics or to social learning within the family. In many studies it was shown that entrepreneurs indeed often had mothers and fathers who were entrepreneurs themselves (Ronstadt, 1984; Hisrich & Brush, 1986), and students in business administration had higher expectancies for an entrepreneurial career if their parents were self-employed rather than employees (Scherer, Adams, Carley, & Wiebe, 1989). Thus, a family example of entrepreneurship is hypothesized to influence the expectation of entrepreneurial skills and interest in entrepreneurial activities among the adolescent offspring.

Conditions for new businesses vary as to cultures, sub-cultures, market situations, tax and venture capital issues, and other background variables that facilitate or hinder entrepreneurial activities (Hisrich, 1990). Consequently, the average age as well as the absolute numbers of individuals starting a new business differ according to the context (Shane, 1996; Davidson & Wicklund, 1997; Ronstadt, 1984). However, it would seem that a strong interest in entrepreneurial activities would both raise the likelihood for starting a new business in any given context and relate to a younger age at which such entrepreneurial activities are pursued.

Unfortunately, there is no such data on entrepreneurs and their occupational interests during adolescence other than the biographic reports of successful entrepreneurs who reported to have planned for their entrepreneurial career from an early age (Fenster, 1999). Empirical work has supported the view that early vocational interests and aspirations generally are good predictors of later occupational choices (Schoon, 2001; Schoon & Parsons, 2002; McLaughlin & Tiedeman, 1974; Trice & McClellan, 1993). It is plausible to assume, therefore, that many individuals who

are very interested in entrepreneurial activities as adolescents not only become self-employed eventually, but that they are among those who start their ventures at an early age.

The decision to pursue an entrepreneurial career may be regarded as the most proximal precondition for a successful entrepreneurial career. Other, more distal conditions for successful entrepreneurship have also been identified. Although there is no age limit for becoming an entrepreneur, and certainly there are very successful entrepreneurs who did not start their businesses until they reached their 50s, a younger age at start-up may relate to more success, given the same amount of preparation and planning (Ronstadt, 1984). Moreover, many different personality factors have been discussed as potentially relevant for entrepreneurial success, such as achievement orientation (e.g., Begley & Boyd, 1987; Brockhaus & Horwitz, 1986; Miner, Smith & Bracker, 1994), risk-taking propensity (Busenitz, 1999; Peacock, 1986; Miner, Smith & Bracker, 1994), internal locus of control (Cromie, 2000), or innovativeness and creativity (Engle, Mah & Sadri, 1997). To date, the lower-order five factor constructs have not been related to entrepreneurial success, although consistent relations between the “Big Five” and more narrow traits have been reported in a number of studies (Ashton et al., 1998; Mount & Barrick, 1995). Relations between work performance and the big five personality factors have also been reported for salespeople and managers but not for entrepreneurs. Managers and sales people were shown to work most effectively if they had high levels of extraversion and conscientiousness, and low levels of agreeableness (Vinchur, et. al., 1998; Salgado, 1997; Barrick & Mount, 1993). Taken together, a young age at start-up, and an entrepreneurial personality profile consisting of high extraversion, openness for experience, conscientiousness, and low agreeableness and neuroticism can be expected to foster entrepreneurial success.

## Method

This study explored possible antecedents of entrepreneurial activity and success that are present as early as in adolescence. Whilst a longitudinal study spanning at least the 15 years between high school attendance and the average founding age in the early thirties would have been the ultimate method for such a goal, time and cost prohibited this approach. The method chosen, therefore, was to combine two cross sectional samples.

### Sample Study 1.

In the summer of 1998, school students ( $N = 320$ ) from different school tracks ( $N = 179$  college bound [55.9%],  $N = 141$  non-college bound [44.1%]) were interviewed using structured questionnaires. The students were contacted at seven different schools located in East Germany. The mean age of the respondents was 15.5 years, with an age range from 14 to 17 years. About half of the group were females (54.1%). Similar to the local population in general, the share of those who grew up outside of East Germany was extremely small; only two were born and raised in West Germany and six outside of Germany before they moved to East Germany. The students were in the 10<sup>th</sup> grade. Thus, the group of the non-college bound students were about to finish school (in Germany, non-college bound school tracks end with 10<sup>th</sup> grade). Most of them ( $N = 233$ , 72.8%) lived with both of their (biological) parents, the others either with mother or father.

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Table 1

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### Sample Study 2.

East Germany underwent substantial societal and economic changes from a socialistic to a capitalistic system with German unification in 1990. In 1997, 139 East German business founders were interviewed using a semi-structured questionnaire. The sample also included some West Germans who had moved to East Germany, in part with existing West German firms. Using information on addresses provided by the local chamber of commerce, potential participants were contacted either directly or through their secretaries, and asked to be prepared to spend an hour of their time on the study. The response rate was about one third. The sample was not selected based on growth orientation or size, and the type of the businesses covered a broad range. For example, the participants included founders of bakeries and car repair shops; owners of hotels, computer and software businesses; providers of services such as graphic design, advertisement, real estate, and counseling; and manufacturers of optical machinery or medical equipment parts. The number of employees varied from 1 to 433. Table 1 shows some of the characteristics of the ventures and their founders.

#### Variables.

The aim was to collect parallel data for the founders and the school students if at all possible. Thus, the same scales were used for overlapping variables except in the case of entrepreneurial competence, interests, and preferences. Table 2 lists the variables used including sample items, response scales, means and standard deviations, and the source of the respective scale. In the following, some additional comments are given on how the variables and scores were measured.

Entrepreneurial personality. An entrepreneurial personality was characterized as high in extraversion, conscientiousness, and openness, and low in neuroticism and agreeableness. The so-

called "big-five" personality traits were assessed for both students and founders using a set of 45 items (Ostendorf, 1990). This German questionnaire consists of bipolar adjective pairs, 9 for each big five personality factor. Responses were along a six-point Likert scale (0-5), which was placed between the adjective pair so that the participants could check a box closer to one or the other end of the scale. All five factors were scored separately (agreeableness and neuroticism inverted, so that scores closer to 5 represented low neuroticism and agreeableness). Then the five scores were averaged. A high value in the resulting variable ( $Min = 0$ ,  $Max = 5$ ) indicated an entrepreneurial personality.

Authoritative parenting. Following Steinberg, Mounts, Lamborn, and Dornbusch (1991), parental behavior in the family of origin was considered authoritative if it was described as warm and supportive rather than strict and inconsistent, and in addition included parental monitoring as well as autonomy granted to the children. The students reported their current perceptions concerning the parenting style in their families, while the founders were asked to remember the parenting style in their families at the time when they were about 15 years of age. Four different variables were used to compute an indicator of authoritative parenting. First, the participants reported the degree of information they shared with their parents (Kerr & Stattin, 2000): Four items were combined to form an average score for **monitoring**. The second set of three questions related to **autonomy of decision making** concerning adolescents' clothes, friends, and money (Dornbusch, Ritter, Mont-Reynaud & Chen, 1990). The style of the family interaction was assessed using twelve items (Reitzle, Winkler-Metzke & Steinhausen, 2001), half of them tapping **warmth** and the other half tapping parental **authority**. The response format was different for the two samples in three of the four variables. The founders were asked to rate their responses concerning monitoring, warmth, and authority ranging from 1 (not true) to 4 (true), whereas

students rated their responses on scales from 1 to 5 (true). The only exception was autonomy of decision making, where the same answering format was used. Using median split (high monitoring, warmth, adolescent autonomy, and low authority) separately for the two samples, the respondents were divided into those who had enjoyed higher quality parenting and those who had not in the respective variables (a similar procedure was used in other work on authoritative parenting, see for instance Steinberg et al, 1991). An index for authoritative parenting was computed by summing the hits. For example, a founder with 2.67 in monitoring (Median = 2.75), 3.33 in warmth (Median = 3.0), 2.17 in authority (Median = 1.50), and 4.75 in autonomy (Median = 2.50) would have received a score of 2, because he was above the median in warmth and autonomy (2 hits). The resulting score ranged from 0 to 4 ( $M_{stud} = 2.10$ ,  $SD_{stud} = 1.25$ ;  $M_{foun} = 2.00$ ,  $SD_{foun} = 1.32$ ).

Early entrepreneurial competence. Concerning entrepreneurial competence during adolescence, measures for the founders had to be less differentiated than for the students. Thus, the founders were asked in a narrative format to report early behaviors and abilities they deemed important concerning school, leisure, and their decision to become an entrepreneur. Again, the age they were asked to remember was 15. Three boxes were offered per question, allowing for a maximum of nine answers. All nine (or less) answers were combined into seven categories. For the purpose of the study, only one of the seven categories was used, namely all statements tapping on early entrepreneurial competence. To cover the same construct, the students were given three different sets of items, namely on leadership, curiosity, and entrepreneurial skills. The three measures were used to form a latent indicator of entrepreneurial competence. The first tapped on **leadership**. Five items describing typical classroom situations were formulated for the purpose of the study and had to be rated using a four-point scale, ranging from 1 (no contribution,

i.e., I keep out of other people's business) to 4 (would act in order to lead the group, i.e., I speak up in the classroom in order to support my classmates. I do not give up). The second scale also was constructed for the present study and measured **curiosity** using 5 items. The third measure was adapted from the German version of Holland's Self-Directed Search (Bergmann & Eder, 1992) and assessed self-reported **entrepreneurial skill**. The students were given a list of 13 statements concerning performance in entrepreneurial activities and were asked to rate on a five-point scale how well the items described them ('I can organize other people's work', 5 = true). In all three cases, the mean of the scales served as the respective variables.

Early entrepreneurial interests. Entrepreneurial interests were assessed for the students only. They were given 11 items adapted from the German version of Holland's Self-Directed Search (Bergmann & Eder, 1992). On a five-point scale they were asked to rate a list of 11 entrepreneurial activities in terms of their likes and dislikes ('I like to read business journals', 5 = true). Again, the mean of the 11 items served as the variable.

Entrepreneurial career prospects. Entrepreneurial prospects were assessed differently for students and founders. Students were asked what they thought they would be by the age of 40, and 114 (35.6% of the sample) chose 'self-employed' or 'business executive' out of a list of six different options. This information was dichotomized and used as outcome variable (1 = self-employed, 0 = other). The founders reported the age at which they had first thought about self-employment as a career option. German unification in 1990 came with a shift from a socialist planned economy to a free market and, thus, marked a huge difference in the possibilities for self-employment. In combination with their age in 1990, a dichotomous variable was computed: Those who did not think about self-employment earlier than 1991 received a zero. Individuals who indicated that they had considered self-employment before or during 1990 were assigned to

the other group (1,  $N = 69$ , 49.6%). The remaining 12 did not remember when they first thought about self-employment.

Entrepreneurial success. Four variables measured the success of a business. The number of **years in business** was assessed by a self-report item. Some of the firms had already existed before 1990. Nevertheless, 1990 was assumed to have been the first year in business, as the conditions during the socialist regime and its centrally planned economy certainly were different to the situation after 1990, when the capitalist system took over with a free market economy. The number of years completed up to the interview in 1997 was used as a measure. Someone who had entered business in 1990 received a value of 7, a founder in 1997 had a value of 0. The second measure for success was the company's **gross income** for the last year. Of the 139 individuals, 104 gave this information. A regression analysis ( $\Delta R^2 = .07$ ) with income as dependent variable and two dummy variables for type [D1: sales = -1, service = 0, manufacturing = 1; D2: service = -1, sales = 0, manufacturing = 1], plus a variable for size, i.e. number of employees including the founder was computed. A significant effect was found only for size ( $b = .25$ ;  $p < .01$ ). The two dummy variables failed significance (D1:  $b = .15$ ,  $p = .231$ ; D2:  $b = -.16$ ,  $p = .201$ ). To control for differences related to size and type of business, z-standardized residuals instead of the raw values were used as a measure for the company's gross income. In addition, four items were chosen to assess **subjective career satisfaction** (Parasuraman, Greenhaus, & Granrose, 1992). The respondents were asked to indicate on a four-point scale how satisfied they were concerning their income, their progress made towards their overall career goals, their personal success, and the economic development of their businesses. The fifth original item loaded on another factor and was therefore excluded from the scale. The mean value of the four items was used to measure for career satisfaction. Finally, **business survival** was assessed as a measure for objective

success. In the spring of 2001, i.e., about four years after the original data collection, the entrepreneurs who had left their names and addresses for later contact (this was true for 90 out of the 139, thus 49 founders could not be contacted) were phoned. In cases when there was no answer, it was verified whether the firm was still in existence or not by using local phonebooks, address books, and internet data banks. Survival was a dummy coded variable (yes= 1, no = 0).

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Table 2

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## Results

### Results Study 1: Students.

Instead of computing a series of separate multiple regression analyses, and, more importantly, in order to include a latent variable as one of the predictors, a single structural equation model was computed using AMOS (Analysis of Moment Structures; Arbuckle & Wothke, 1999). As a first step, zero-order correlations were computed to assess the general pattern of relations among the study variables. Origin could not be used as a control variable due to too little variance. Gender did not have a significant effect either on entrepreneurial skills or on entrepreneurial career prospects and therefore was not included. Table 3 shows the results.

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Table 3

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Second, all variables including age of the respondents were combined in a path model. Such a model would allow the plausibility of the proposed relations to be tested for while controlling for possible confounds. It had an excellent fit with a  $c^2$  of 4.40 ( $DF = 11, p = .957$ ,  $NFI = .999$ ;  $RFI = .998$ ;  $RMSEA = .000$ ). The results are shown in Figure 1. Significant paths ( $p$

< .05) are indicated by paths in bold print. The  $DR^2$  are given in the upper right corner of the outcome measures, the standardized path coefficients appear next to their respective paths. Paths which were included in the model but proved to be insignificant are shown as thin lines without a coefficient indicated.

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Figure 1

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Personality and authoritative parenting both predicted entrepreneurial competence in adolescence: The more quality parenting the students experienced, and the more entrepreneurial their personality profiles, the higher were the levels of self-reported curiosity, leadership, and entrepreneurial skills. The same was true if someone had self-employed parents. Furthermore, entrepreneurial interests indeed occurred more strongly in students with high entrepreneurial skill ratings, and there was no direct effect of personality or parenting on interests.

As hypothesized, entrepreneurial interests associated with entrepreneurial career prospects. There was a strong relation between preferences for entrepreneurial activities and the plan to be self-employed by the age of 40. Those who indicated that they liked to do entrepreneurial activities (i.e., had a strong interest in entrepreneurship) also reported that they expected to pursue an entrepreneurial career. Note that the relation between personality and entrepreneurial career prospects was reduced from .24 as shown in the correlation table to .15 in the model. Thus, the linkage between personality and career is in part mediated by entrepreneurial skill ratings and interests. In addition, family self-employment had a small effect. Students with self-employed parents or other family members were more likely to be willing to pursue an entrepreneurial career.

## Results Study 2: Business founders.

Again, a single structural equation model was computed to assess the effects of the controls, personality, and parenting style, first on early signs of entrepreneurial skills and interests, and second on entrepreneurial success simultaneously. In the case of the founders this was done to avoid a listwise or pairwise deletion of cases, or mean imputation due to missing data, which would have either produced analyses based on different *N*s or somewhat weak estimates of the effects. The number of cases with no missing values at all was limited to *N* = 68, and, thus, could not serve as a good basis for the estimation of effects for the whole group of 139 cases. AMOS (Arbuckle & Wothke, 1999) provides an elaborate way to cope with missing data by computing full information maximum likelihood estimates. This is the recommended estimation method to achieve reliable results, even when missing data deviate from missing at random and are nonignorable. Thus, in the presence of missing data of any kind, AMOS is used for conventional analyses such as a simple regression analysis or the estimation of mean differences (Arbuckle & Wothke, 1999, p. 332).

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Table 4

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First, zero-order correlations for all variables included in the model were computed, as shown in Table 4. The correlation coefficients reveal that the bivariate relations among most of the variables were in the expected direction and statistically significant. Due to the low *N* in this analysis, it was considered feasible to include paths up to  $p < .10$  in the reports on the results. Second, a complex model was computed according to the five hypotheses. The model had a good fit,  $c^2$  was 18.69 with 15 degrees of freedom ( $p = .228$ ;  $NFI = .994$ ;  $RFI = .976$ ;  $RMSEA = .042$ ).

Results are shown in Figure 2 together with the standardized path coefficients and  $DR^2$  for each of the outcome variables. Significant standardized path coefficients appear in bold print ( $p < .05$ ) and italics ( $p < .10$ ), respectively. Paths which were included in the model yet proved to be insignificant are shown as thin lines without a coefficient indicated.

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Figure 2

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As expected, an entrepreneurial personality profile and authoritative parenting in the family of origin related to early entrepreneurial competence among the entrepreneurs. In addition, age had an effect. The older the respondent, the less he or she had reported entrepreneurial skills or behaviors during adolescence. Note that an older age did not contribute to less detailed self-descriptions in general (i.e., there is no memory effect). Rather there seem to be cohort differences in the way the respondents described themselves in retrospect. Older respondents mentioned social skills and behaviors more often than younger ones. Moreover, early entrepreneurial competence related to earlier entrepreneurial career prospects, that is, an earlier timing of a career decision towards self-employment. Those who reported entrepreneurial competence during adolescence also indicated that their decision for an entrepreneurial career took place either before or during 1990. Again, this relation is controlled for the effects of age and origin (younger respondents and respondents from East Germany were more likely to have thought about a career as an entrepreneur after the German unification in 1990). Thus, the effect is independent of where the founders grew up and how old they were when they completed the questionnaires.

Early plans for pursuing an entrepreneurial career, in turn, relate to an earlier business start-up, resulting in a greater length of existence at the time of the first interview. As expected, plans for future self-employment that had existed before or during German reunification were helpful in order to start one's own business immediately after the conditions of a capitalist market were established. Older respondents and respondents from East Germany were more likely to have founded a business soon after 1990, whereas younger founders and those coming from West Germany took longer to get ready for their start-up.

In a last step, entrepreneurial success was studied. This varied as a function of personality, and the time lapse since the founding of the firm. There were, however, different effects depending on the success variable in question. If an individual had a higher entrepreneurial personality profile (i.e., low agreeableness, high conscientiousness, high extraversion, low neuroticism and high openness), he or she also reported more satisfaction with his or her economic progress and success. However, there was no such effect for company gross income, or survival until the second interview four years later. Time in business (i.e. founding soon after 1990) was relevant only for the survival of a firm. The longer it had existed before the first interview, the more likely it was that it also survived the following four years. The size of the gross income predicted subjective career satisfaction: The more money the respondents reported having made during the last year, the higher their career satisfaction. Career satisfaction, in turn, related to the survival of the business. Those who were satisfied with the economic development, were more likely to survive the following four years. Again, all effects were controlled for age of the respondents and their origin. For career satisfaction and company income, strong significant effects of the two control variables were found. The older the founder, the less satisfied he or she

was in terms of the economic success. Moreover, East German origin had an effect. Those who grew up in East Germany were less satisfied, as well as having a lower company income.

## Discussion

The present study aimed to identify possible precursors of an entrepreneurial career, and, as a second step, entrepreneurial success. For both students and business founders equally, self-reported, early entrepreneurial competence turned out to be predicted by personality traits and parenting style. In addition, parental modeling was important. Those adolescents who had an example of entrepreneurial activity close at hand were more likely to show entrepreneurial competence. This, obviously, did not hold for the adult sample in the large majority of cases, as their parents were tied to state-governed employment in the centrally planned economy of East Germany. Note, however, that there was no such effect for entrepreneurial interests, which points out that interests and self-reported competence in a given field are indeed not the same thing, although the two relate closely.

Concerning effects resulting from high entrepreneurial competence in adolescence, the samples obviously had to be studied separately. In the adolescent sample, high expectations about entrepreneurial skills strongly predicted entrepreneurial interests, which in turn related to entrepreneurial career prospects (i.e., the plan to be active as a business founder by the age of 40). It can't be known whether all of the 114 adolescents who expected to be self-employed by the age of 40, will indeed found a business or even become entrepreneurs. However, to be wishing and expecting to do so is at least one, if not the most central, antecedent for a future entrepreneurial career path (Schoon, 2001; Schoon & Parsons, 2002; McLaughlin & Tiedeman,

1974). For the business founders it is known that they started their own venture. It was expected that the more entrepreneurially competent personalities in this group would have developed plans for self-employment earlier than the others, and, indeed, such a relation was found. The more frequently the founders had retrospectively described themselves as entrepreneurial in their adolescent behaviors, skills, and characteristics, the more likely they had also thought about entrepreneurship as a career option before or during German unification.

An early decision to follow an entrepreneurial career path indeed contributed to an earlier start-up, as was shown by the relation between the timing of the plans for self-employment and the age of the business in 1997, when the business founders were questioned. Those founders who had known right from the start of the new (capitalist) market conditions in 1990 that they wanted to pursue their entrepreneurial aims, managed an earlier start to their venture, and, thus, were longer years in business when they participated in the study. In turn, years in business related to entrepreneurial success. The older a business's age in 1997, the more likely it was to survive the following four years until 2001. Company income and career satisfaction, however, were not related to the number years in business. This may suggest that years in business reflect steadiness and market conditions rather than success.

Concerning the relations among the different indicators for entrepreneurial success, there were some interesting findings as well as some unexpected ones. Business persistence in 2001 was predicted by the career satisfaction a founder had reported four years earlier, but not by the company's gross income. If a business founder had indicated that he or she was quite satisfied with the economic progress of the business in 1997, it was likely that the business survived until 2001. Consequently, the survival of a business appears to be linked exclusively to the personal

perception and appraisal of a founder, rather than to objective variables of the economic situation itself. However, such an appraisal entails subjective as well as objective factors: the gross income had an impact on the level of satisfaction. The more money the founders reported having made in the previous year, the higher they rated their level of satisfaction with their businesses. Moreover, the personality of a founder fed into his or her career satisfaction, but did not relate to the level of company gross income. The more entrepreneurial the founders in terms of their personality traits, the better they felt about their economic progress and success.

What are the limitations of this study? Obviously, the most serious problem is the cross-sectional character of the data. Retrospective information always has the scent of being fed by current experiences rather than giving a realistic picture about past situations or processes. However, there is evidence that such retrospective reports bear valuable information. Schneewind and Ruppert (1998) showed, for instance, that retrospective reports about the quality of parenting in the family of origin were similar to the original reports from when the participants of the study still lived with their parents. Indirect support for this notion comes from the results of the other cross-sectional data set used for the purpose of the study. The findings concerning the relation of parenting with entrepreneurial competence for the adolescent respondents who still lived with their parents were very similar to those shown for the adult group.

The second problem of the present study relates to the first: By setting up a model for entrepreneurial career development and success, even without longitudinal data, there are implicit assumptions concerning causality. Personality is seen as cause and not consequence of entrepreneurial action, and there is evidence supporting such a view. First, research shows that personality is relatively stable over the life span (Caspi & Roberts, 2001). Second, concerning

entrepreneurship, some studies have shown that characteristics of individuals that qualify them as entrepreneurial are present before start-up. The newest study supporting this view is Miner's (2000) longitudinal investigation of University students. He showed individuals high in one of four entrepreneurial personality types to be much more likely to be successful entrepreneurs in five years time than others who did not score so highly. Similarly, adolescents and young adults engaged in a Young Enterprise group were more entrepreneurial than their counterparts who did not take part (Bonnett & Furnham, 1991).

Another important limitation of the study is the data source. In both cases, for founders and students, all information was collected from a single source, possibly resulting in an overly optimistic view of covariances between variables. Moreover, the use of only one method of data collection could result in a common method bias. Another related point may be the one of social desirability. However, given that the results fit with other studies using methods different to those used here, and given that the findings at least for one half of the model could be shown for both samples in an almost identical way, it seems conceivable to assume reliability and validity of the results. Ideally, a prospective longitudinal study would follow up on a cohort of adolescents and their vocational development. Multiple methods and sources, combined with the statistical control for social desirability of the self-reported data, would help to control for any biases in the observed relations (Podsakoff & Organ, 1996; Ones, Viswesvaran, & Reiss, 1996).

#### Implications for practice and future research

In reviewing the findings of the present study, two issues that warrant a somewhat closer look come to mind. The first concerns the role of personality in entrepreneurial success. According to

the findings of this study, the right personality profile is important for entrepreneurial success. Independent of the gross income of their business, the founders were shown to be more likely to feel satisfied with their businesses and personal progress when they were more entrepreneurial in terms of their trait profile. More satisfaction with career, in turn, predicted a higher survival probability, again independently of the actual company income. In other words, founders, who felt somewhat unhappy with how things were developing, ran a higher risk of giving up, although the actual situation may not have been so bad. Company income seemed not to relate to personality of the founder at all. Additional data, however, seemed to draw a somewhat different picture. In a sub-sample of 60 founders, the strategies they reported using in their daily work were assessed. Personality was shown to feed into entrepreneurial strategies, especially concerning innovation. The more innovative a founder reported being when it came to problems, the higher the gross income of his or her business. Thus, there seems to be a relation between personality and income, but the coupling is loose. Nevertheless, this finding supports the view that the right personality profile not only has a guiding function in terms of an entrepreneurial career choice but also is relevant for both subjective and, to a lesser extent, objective success.

Although personality traits have long found their way into personnel assessment, German banks make no use of instruments for the assessment of either personality traits or of skills and strategies known to foster good outcomes of entrepreneurial activities. This is surprising because interviews revealed that bank managers know about the importance of strategic entrepreneurial skills and personality for entrepreneurial success. In 20 interviews with bank managers who were specialists for venture capital loans (conducted as part of the pilot study for this project), it turned out that almost all had spent some of the interaction time with applicants for start-up capital in a subjective assessment of his or her personality and skills. They were clear about the fact that

rhetoric competence or the motives for the start-up were not an appropriate basis for judgement. However, while they had no formal instruments, they did try to find out about “disordered family background”, “civil servant mentality” or “unemployment as motive for start-up”, examples of factors the bank managers deemed important markers of a non-entrepreneurial personality. More systematic testing of the personality and skills of a future small business founder may help to provide a better overview of a person’s characteristics, and, thus, provide at least some information for a prognosis of the performance and survival of the business in question.

The other, even more important, implication of the present research relates to the findings on the role of an entrepreneurial profile in adolescence. Among the group of achievement oriented, extroverted, and creative young people are those who are entrepreneurially interested and skilled. In assuming that it is this group who are among the first to get a business started, and furthermore, that an early start-up yields huge advantages for future entrepreneurial success, then it is conceivable that this group has the potential for becoming excellent entrepreneurs in the future. In Germany, only 10% of the entire work-force was self-employed in 2002 (Federal Statistical Office Germany, 2003), in spite of high unemployment rates. To stimulate entrepreneurship as a means to create new jobs, there have been many different efforts, with mixed success thus far. Assuming that there are more than one in ten entrepreneurial personalities in the population, the encouragement of young people to become self-employed may be the most promising strategy to foster entrepreneurship (Kent, 1990). If the discovery of entrepreneurial skills in adolescence is beneficial for an early age at start-up, as indicated by this study, future programs for entrepreneurship stimulation should include activities that develop characteristics such as leadership, team spirit, self-efficacy, and positive competition. Learning that one has an entrepreneurial personality and about the fun and satisfaction it brings for such a person to act

creatively in a leading role, and then learning about entrepreneurship as a career path, may help to develop young entrepreneurs.

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Table 1. Characteristics of the Sample of Study 2 (N = 139 Business founders)

		<i>N</i>	<i>%</i>	<i>M</i>	<i>SD</i>
Male		104	74.8		
East German origin		116	83.4		
Age				39.00	8.64
	20-25	6	4.3		
	26-35	48	34.8		
	36-45	49	35.5		
	46-59	35	25.4		
Self-employed family <sup>a</sup>		44	31.6		
Existed before 1990		15	13.3		
Employees (incl. Founder)				14.67	45.94
	1	26	18.8		
	2-20	94	68.1		
	21-40	8	5.8		
	41-100	5	3.6		
	101-433	3	2.2		
Company gross income (US\$)				2,001,268	7,400,747
Type of business started					
	Service	55	39.6		
	Manufacturing	29	20.9		
	Sales	55	39.6		
Year of Start-up <sup>b</sup>					
	1990-1991	59	44.0		
	1992-1994	40	29.8		
	1994-1996	35	26.1		
Survival (4 years, N = 90)		65	72.2		

Note. <sup>a</sup> Note that among the founders, self-employed family usually referred to spouses or other relatives, not to entrepreneurs in the parent generation. Thus, this variable was not included in the computations for the founders.

<sup>b</sup> Even though some of the businesses were established under socialist conditions before German unification, the true start-up year was considered 1990, as this was the first year of the capitalist market in the East.

Table 2. Variables used in the two studies

Construct	Variable	Answering scale	N <sub>it</sub>	M <sub>stud</sub>	SD <sub>stud</sub>	α <sub>stud</sub>	M <sub>foun</sub>	SD <sub>foun</sub>	α <sub>foun</sub>	Sample item
Entrepreneurial Personality Profile				2.95	.39		3.18	.29		
	Agreeableness	5 = low, 0 = high	9	2.21	.56	.58	2.05	.58	.74	Good natured vs. cranky
	Conscientiousness	0 = low, 5 = high	9	3.05	.78	.81	3.64	.62	.76	Lazy vs. diligent
	Extraversion	0 = low, 5 = high	9	3.10	.78	.75	3.26	.60	.71	Uncommunicative vs. talkative
	Neuroticism	5 = low, 0 = high	9	3.15	.67	.75	3.42	.50	.77	Vulnerable vs. robust
	Openness	0 = low, 5 = high	9	3.24	.58	.56	3.52	.56	.71	Conventional vs. inventive
Authoritative Parenting				2.10	1.25		2.00	1.32		
	Monitoring	5/4= always, 1= never	4	3.26	.86	.75	2.69	.56	.83	Do/did you tell your parents about your best friends?
	Decisions in the family	1= I alone, 5= parents alone	3	1.39	.61	.72	2.46	.79	.67	Who decides/decided about how you spend/spent your money?
	Warmth	5/4 = true, 1 = not true	6	3.77	.77	.84	2.90	.61	.87	My parents support/supported me when I have/had a problem
	Authority	5/4 = true, 1= not true	6	2.40	.78	.77	1.61	.53	.76	My parents usually won't speak to me for a while when I have/had done something wrong
Self employed family		1 = yes, 0 = no	1	N 126	39% <sup>a</sup>		N 44	32% <sup>a</sup>		Is there anybody in your family who (also) runs a business?
Entrepreneurial competence students										
	Leadership	1= no contribution, 4= act to lead group	5	2.67	.63	.68				Some of your classmates have got into mischief. The teacher wants to discipline them by means you consider as too hard. What do you do?
	Curiosity	1= not true, 5= true	5	3.19	.68	.71				I am really excited if I can learn something new by watching someone else

(Table 2, continued)

Construct	Variable	Answering scale	$N_{it}$	$M_{stud}$	$SD_{stud}$	$\alpha_{stud}$	$M_{foun}$	$SD_{foun}$	$\alpha_{foun}$	Sample item
	Entrepreneurial skills	1= not true, 5= true	13	2.96	.78	.90				I can organize other people's work
Entrepreneurial competence founders		Narrative format, counting index	≤ 9				0.71	1.22		"Usually I was the one who encouraged others in my class to get something done"; "I was self-confident and had lots of fighting spirit"
Entrepreneurial interests		1= not true, 5 = true	11	2.90	.84	.85				I like to read business journals
Entrepreneurial career prospects		1 = entrepreneur/busn. executive, 0 = other	1	N 114	36% <sup>a</sup>					Concerning your occupational status, what do you think you will be by the age of 40?
		1 = before German unification, 0 = after	1				N 69	50% <sup>a</sup>		At what age did you first think about starting your own business as a career option?
Entrepreneurial success										
	Years in business	Number of years after 1990	1				4.44	2.35		When exactly did you start your business?
	Career satisfaction	1= dissatisfied, 4= satisfied	4				2.86	.56	.81	How satisfied are you about the economic development of your business?
	Company gross income	\$ 1997 before taxes	1				2,0 <sup>b</sup>	7,4 <sup>b</sup>		What was the income of your business in the last year?
	Survival 4 years		1				N 65	72% <sup>a</sup>		Survival checked by phone calls in 2001

Note.  $N_{it}$  = Number of items in the scale.

<sup>a</sup>In cases of dichotomous variables, instead of mean and standard deviation the frequency of the value 1 and the respective percentage are reported: N 69 50% = 69 participants replied with yes, which equals 50%.

<sup>b</sup>The unit here is millions. With one outlier excluded from the analyses, skewness is reduced from 7.7 to 3.5, and with the exclusion of four individuals it is 1.8 only. In both cases, results showed to be exactly the same as with the original distribution. Therefore, analyses have been carried out with all respondents.

Table 3. Correlations between the variables (Study 1 – School students).

	1	2	3	4	5	6	7	8
1 Age	---							
2 Self-employed family	-.01	---						
3 Authoritative parenting	-.09	-.00	---					
4 Entrepreneurial personality	.03	.05	<b>.26</b>	---				
5 Leadership	.06	<b>.15</b>	<b>.21</b>	<b>.43</b>	---			
6 Curiosity	.05	<i>.11</i>	<b>.16</b>	<b>.34</b>	<b>.41</b>	---		
7 Entrepreneurial skills	<i>.11</i>	<b>.11</b>	<b>.17</b>	<b>.48</b>	<b>.49</b>	<b>.46</b>	---	
8 Entrepreneurial interests	.07	<b>.13</b>	<i>.10</i>	<b>.25</b>	<b>.31</b>	<b>.41</b>	<b>.63</b>	---
9 Entrepreneurial career prospects	-.03	<b>.16</b>	<i>.09</i>	<b>.24</b>	<b>.24</b>	<b>.18</b>	<b>.29</b>	<b>.35</b>

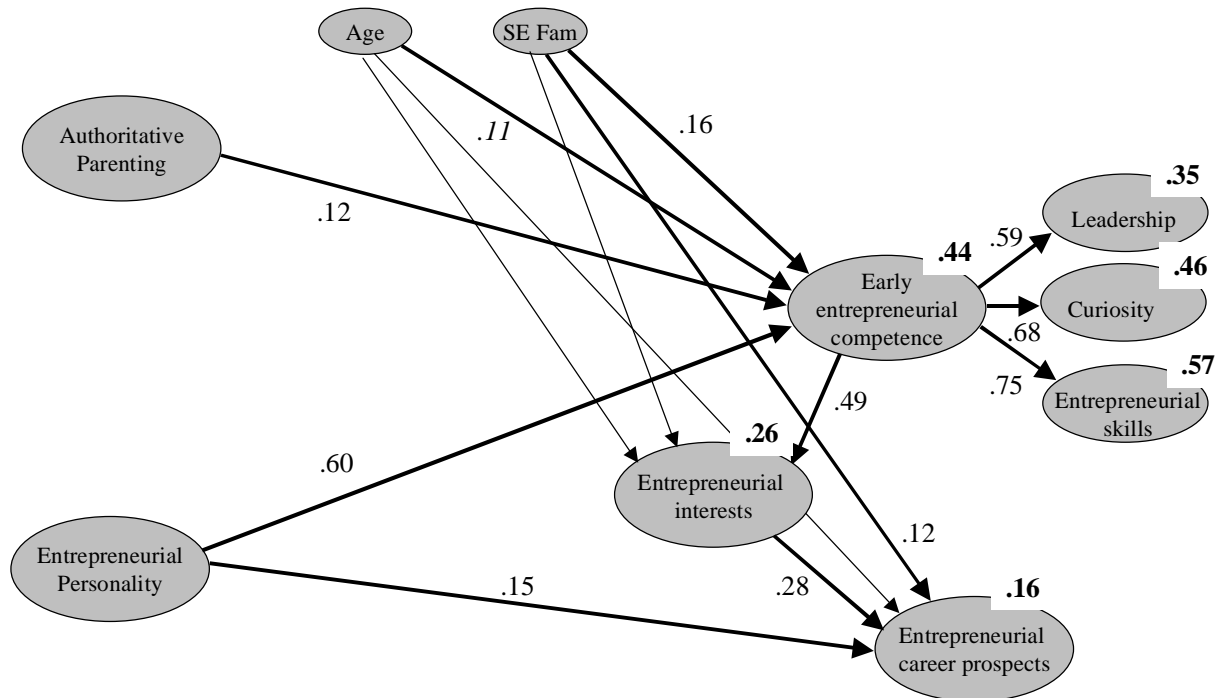
Note. Coefficients significant on the  $p < .05$  level are shown in bold print, on  $p < .10$  in italics.

Table 4. Correlations between the variables (Study 2 – Business founders).

	1	2	3	4	5	6	7	8	9
1 Age	---								
2 Origin East Germany	<i>-.07</i>	---							
3 Authoritative parenting	<b>-.26</b>	.12	---						
4 Entrepreneurial personality	<i>-.00</i>	<b>-.24</b>	.02	---					
5 Early entrepreneurial competence	<b>-.17</b>	<i>-.05</i>	<b>.21</b>	<b>.18</b>	---				
6 Idea of self-employment $\leq$ 1990	<b>.41</b>	<b>-.29</b>	.06	<i>-.04</i>	.08	---			
7 Years in business since 1990	<b>.50</b>	.02	<i>-.11</i>	.03	.02	<b>.52</b>	---		
8 Career satisfaction	<i>-.16</i>	<b>-.28</b>	<i>-.04</i>	<b>.22</b>	.07	.05	.01	---	
9 Company gross income	.06	<b>-.32</b>	<i>-.11</i>	.12	.14	<i>.17</i>	.04	<b>.25</b>	---
10 Survival in 2001	.08	<i>-.02</i>	<b>-.25</b>	<i>-.06</i>	<i>-.07</i>	.05	<b>.27</b>	<b>.27</b>	.13

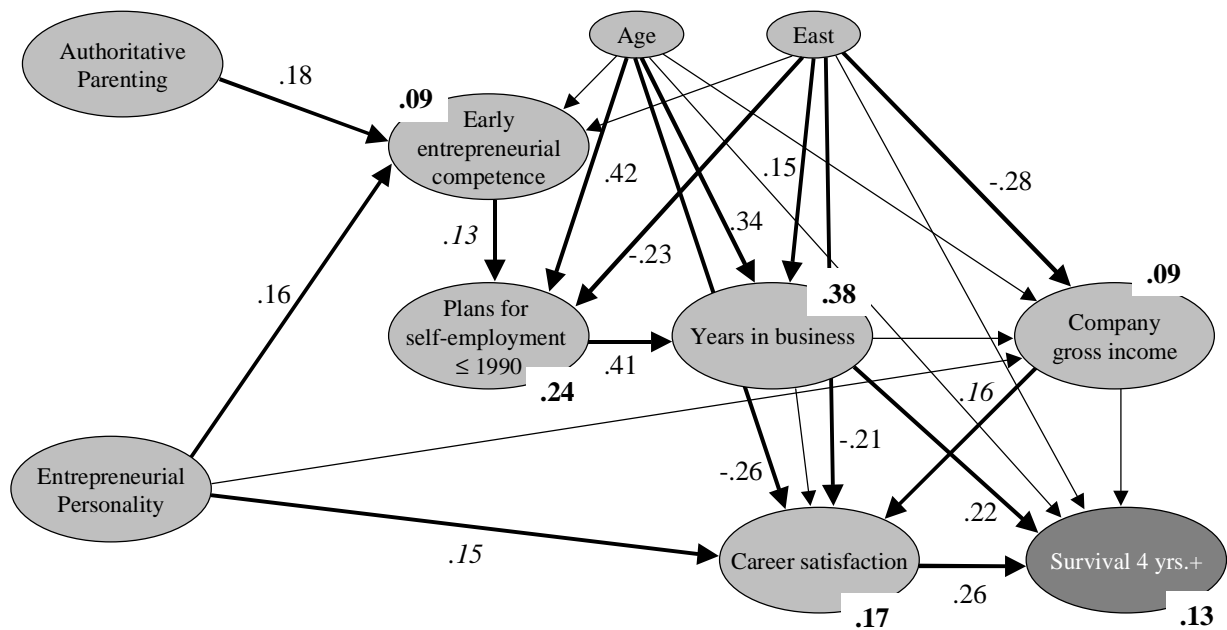
Note. Coefficients significant on the  $p < .05$  level are shown in bold print, on  $p < .10$  in italics.

Figure 1. Results of a model for the prediction of entrepreneurial career prospects: N = 320 10<sup>th</sup> grade school students.



Note. SE Fam = Self-employed family members. Coefficients significant on the  $p < .10$  level are given in italics. All other coefficients are significant on the  $p < .05$  or  $p < .01$  level. R<sup>2</sup> is shown in bold print at the upper right corner of the variables.

Figure 2. Results of a model for the prediction of early entrepreneurial career plans and entrepreneurial success: N = 139 Business founders.



Note. Coefficients significant on the  $p < .10$  level are given in italics. All other coefficients are significant on the  $p < .05$  or  $p < .01$  level.  $R^2$  is shown in bold print at the upper or lower right corner of the variables.

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