

Chapter 3

PSYCHOLOGICAL APPROACHES TO ENTREPRENEURIAL SUCCESS: A GENERAL MODEL AND AN OVERVIEW OF FINDINGS

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Small and medium-sized enterprises are important for today's economy. They have become major agents of economic growth and employment (ECSB Newsletter, 1997). Drucker (1985) described this as a shift from a managerial to an entrepreneurial economy. About 99% of the European companies are small or medium-sized and they provide 66% of the working places (ECSB Newsletter, 1997). Twenty-five years ago, entrepreneurship research was still in its infancy. The number of small-scale enterprises decreased until 1979 (Bruederl, Preisendoerfer & Ziegler, 1992) and consequently, research focused on bigger companies. Since 1979 the founding rate of small and medium-sized enterprises has grown and particularly the number of smaller firms has increased disproportionately. At the same time, there has been an increase in research in this area (Low & McMillan, 1988).

Although there are some good reviews on psychological entrepreneurship research (cf. Chell, Haworth & Brearly, 1991; Cooper & Gimeno-Gascon, 1992; Furnham, 1992), our approach is different. First, we are looking at a much larger database; we do not just concentrate on one area (e.g. personality), but include all variables of psychological importance. Second, we start out with a general model of entrepreneurial success and attempt to coherently relate it to what we have found in the literature. Third, our contribution is a start in the direction of a quantitative review. Unfortunately, it is not possible to do a proper meta-analysis in this area (and with the exception of Schwenk and Shrader, 1993, it has never been done so far), because there are too few studies and the quality of the studies is often insufficient (e.g., standard deviations, exact *t*- or *F*-value, or exact correlations are often not reported). However, we think it is time to get away from purely verbal reviews and at

least to start with a quantitative approach in this area. Fourth, this review is about a psychological approach to entrepreneurship research. This approach is clearly controversial in the general entrepreneurship literature and, therefore, it is necessary to show that this approach is useful; we hope that the reader will be convinced of the importance of such an approach after looking at the evidence without biases. Finally, our conclusions should point out the areas that still demand further research and the methodological approaches that should be favored in future entrepreneurship research.

Entrepreneurship research concentrates on small firms. Compared to bigger companies, small-scale enterprises have their specific strengths and weaknesses. Over the last decade, enterprises with fewer than 10 employees provided more new jobs than bigger companies (Mullhern, 1995). On the other hand, small-scale enterprises do not only add jobs faster than bigger companies but they also eliminate them faster because of a higher failure rate (Ripsas, 1998). However, small enterprises contribute to a high extent to a net growth in jobs both in the developed as well as in the developing countries (Birch, 1987; Bruederl, Preisdoefer & Ziegler, 1992; Mead & Liedholm, 1998). Compared to bigger companies, small-scale firms are more flexible, they act more quickly, they adapt more easily to changing market conditions, they are more innovative and have a closer understanding with their customers. On the other hand, small-scale enterprises often have a weak financial basis, lower-than-average wages, lower labor productivity, lack of strategic marketing approaches, less international orientation and are restricted to operating in highly segmented markets (Mullhern, 1995). Whereas these weaknesses occur in most industries, there are spectacular counter-examples, in which small and medium-sized firms actually achieve 100% of a niche world market (e.g., in the production of theatre curtains, cf. Simon, 1996).

In summary, research on small-scale enterprises has been an almost neglected field in organization research. The field can be described as young, at a formative stage and still in its infancy (Cunningham & Lischeron, 1991). It is multi-disciplinary as various approaches (e.g., psychology, sociology, economics, management, anthropology, and regional sciences) provide different insights to entrepreneurship. For psychologists it provides an interesting area in which the individual psychology of the owner/manager meshes with organizational conditions and which allows them to study predictors and effects of economic success. Thus, the field of entrepreneurship is a challenging area for academic research.

Unfortunately, it is a difficult field to get a complete overview on. Relevant literature in this area is distributed in many outlets and can be found in diverse journals such as the *Journal of Applied Psychology*, *Academy of Management Journal and Review*, *Administrative Science Quarterly*, *Journal of Small Business Management*, *Journal of Business Venturing*, *Entrepreneurship Theory and Practice*, *Journal of Management*, *Small Business Economics*, *World Development*, *Strategic Management Journal*, *Organization Studies*, and there are many articles in

conference procedures such as *Frontiers of Entrepreneurship Research*, *International Council of Small Business Conference Proceedings*, and *Academy of Management Conference Proceedings*. Our search has been guided by looking into PsychLit, SCCI, and EconLit. Unfortunately, not all psychological articles in this area are referenced in these databases, which makes it very probable that there are contributions to the field that we have overlooked.

A GENERAL MODEL OF ENTREPRENEURIAL SUCCESS

Figure 3.1 presents the general model that is the starting point of our review (the Giessen-Amsterdam model of entrepreneurial success). It is interdisciplinary, taking into consideration most areas that have been studied in entrepreneurship research. As such, it helps us to organize this chapter as we will describe the literature referring to every single box. However, looking at the arrows one can see that it is a model that clearly has controversial implications. For example, there are no direct arrows from personality, human capital, or environment to success although such relationships have often been studied. The reasoning behind is rather simple: we assume that there is no success without actions. Actions are mainly determined by goals and by strategies. Thus, the concept of action is central to this model and the strategies and tactics of action is the bottleneck through which all entrepreneurial success is or is not accomplished. All strategies and tactics are goal-oriented and therefore, all entrepreneurial success has to start to look at these variables (obviously, most studies do not do that and therefore, show less power to predict success than is possible). Of course, both goals and strategies may turn out to be wrong, inefficient, or misplaced in a certain environment. Consequently, prior success and failure have an effect on modifying goals and strategies. However, we think that the market is made up of actors who have goals, at least rudimentary strategies, and ideas about how to proceed with their business. For this reason, all of the influences of personality, human capital, and environment on success have to be mediated by strategies and tactics of actions. This concept differs strongly from the theoretical stance of the ecological approach which assumes that essentially a random process of actions is shaped and selected by the environment, including the function of the environment to produce certain failure and success rates. We shall discuss this theory in more detail in the section about environment.

Our point of view will be taken up again in the conclusions at the end of this chapter. At the moment, the Giessen-Amsterdam model of entrepreneurial success will be used simply as a convenient way of guiding the subsections of the chapter. In principle, the Giessen-Amsterdam model can be used on different levels of analysis—the organizational level and the individual level of the firm owner. The level of analysis issue (cf. Klein & Sorra, 1996) has a slightly different function in the area of entrepreneurship because company

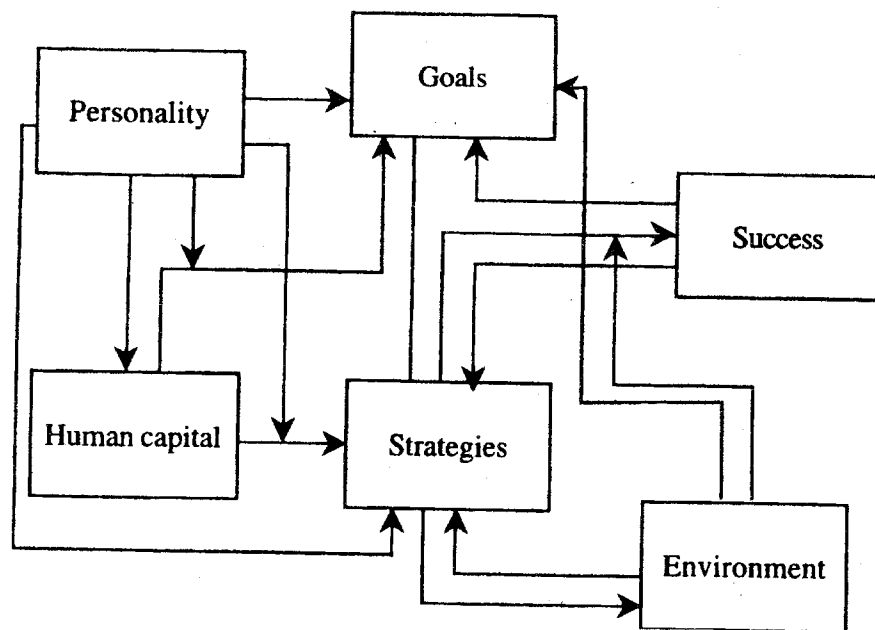


Figure 3.1 The Giessen-Amsterdam Model of small business owners' success

size determines which level is the adequate one. In large companies, the right level of analysis of variables that determines organizational success is the organizational level (an owner may have very different ideas of where this company should go from what it actually does); in small firms, the firm owner is typically the source of action of his firm. When there are only four or five employees in a firm, the owner usually has a much stronger impact on company policy, company culture and the company's actions than in larger firms. Thus, the potential differences between individual and organizational level variables are larger in bigger organizations and become increasingly smaller in small organizations. Consequently, an individual level of analysis—using the personality, human capital, goals, strategies and environment of the individual owner—can profitably be used to study success in these firms (Frese, Van Gelderen & Ombach, 2000). In middle-sized companies, the level of analysis issue is of major importance and it really needs to be empirically determined to which extent data from the owner/manager are useful predictors of success or not.

DEFINITION ISSUES: ENTREPRENEURS, BUSINESS OWNERS AND OTHER CONCEPTS

As in any new field, there is no agreed upon definition of entrepreneurship, entrepreneurs, business owners, and so forth (Cunningham & Lischeron,

1991; Gartner, 1985). Furthermore, founders and owners/managers constitute a highly heterogeneous group that defies a common definition (Gartner, 1985).

The focus of this review is on small-scale enterprises, and on the founders and the owners of these firms. Some authors differentiate between entrepreneurs, small business owners, founders, and chief executive officers (CEOs). Carland, Hoy, Boulton and Carland (1984) distinguished entrepreneurs from small business owners. An entrepreneur is innovative, employs strategic management practices, and manages his business for the purpose of profit and growth (Carland et al., 1984, p. 358). A business owner establishes the enterprise to follow personal goals. Focusing on innovative behavior, this definition follows Schumpeter (1935) who emphasized the creative activities of the innovator. Other researchers consider risk-bearing as the key factor in entrepreneurship (Mill, 1984; Palmer, 1971; Liles, 1974).

However, if one restricts the concept of entrepreneur to innovative behavior (or risk-taking), one needs a clear definition of innovation. Since innovation research is also an area with vague boundaries and difficult conceptual arguments (cf. West & Farr, 1990), one does not really gain a lot of conceptual clarity with Carland et al.'s approach (Gartner, 1988, p. 60). Moreover, it restricts the definition to a very small group of people (e.g., is Bill Gates an innovator or is the only innovator the person who developed the first direct manipulation approach in software?).

For all of the definition problems, we agree with Gartner (1988) who used a descriptive and behavioral definition: 'Entrepreneurship is the creation of new organizations' (p. 62). Thus, entrepreneurs are the founders of new firms. This definition may again be too restrictive because it implies that once the company is established entrepreneurship ends. Therefore, founding, owning, and managing a firm are the important aspects of entrepreneurship. This comes close to Hisrich's (1990) definition of entrepreneurship: 'Entrepreneurship is the process of creating something different with value by devoting the necessary time and effort, assuming the accompanying financial, psychic, and social risks, and receiving the resulting rewards of monetary and personal satisfaction' (p. 209). In contrast to Hisrich, one can argue that numerous non-profit organizations are created by entrepreneurs as well.

Often articles do not clearly describe their samples and even combine different groups into one sample without differentiating them. Consequently, it is difficult to compare results of different studies. Research projects should carefully select the sample appropriate to answer their research question. The following groups can be differentiated:

1. Entrepreneurs are founders, owners, and managers of organizations. Thus, to be simply an owner/manager is not enough to be included in this group (e.g., after having taken over the business from one's parents).

2. Managers may be entrepreneurial to a certain extent but they typically work with other people's money and not with their own. Thus, they can leave the organization and organizational death does not have the same implications for them as it has for entrepreneurs. However, there is a discussion about corporate entrepreneurship in existing organizations looking at managers from an entrepreneurial point of view (cf. Hisrich, 1990).
3. Size matters and should be taken into consideration. Firm owners without any employees are in a very different psychological situation than owners who employ at least one person. Closing down is obviously much more difficult if one has to fire employees than if one just packs up and takes a job somewhere else. One should have at least one employee to be included in the group of entrepreneurs. Size also matters in other ways. Is the organization still easy to lead and with only a few employees (e.g. up to 10), the psychological prerequisites are different than if one has to deal with a small-scale firm of up to 50 employees (1-50 employees constitutes the European Union definition of small-scale firms)? More delegation and management are needed in a firm above 10 employees. Starting with 50 employees, we should talk about mid-size firms.
4. Finally, one needs to differentiate between studies which are based on representative samples of small-scale enterprises and those with selected business samples, for example high-tech firms, innovative firms, fast growing firms.

CHARACTERISTICS OF THE ENTREPRENEUR

There are several approaches in describing the entrepreneur: trait, motivational, human capital, and typological approaches. Early approaches typically focused on personality characteristics of the entrepreneur. It is necessary to separate two issues in the following discussion: the emergence and the success of entrepreneurs. There should be different processes by which a person decides to become an entrepreneur and by which a person achieves entrepreneurial success (Utsch, Rauch, Rothfuss & Frese, 2000). It makes sense that personality characteristics may be more important for the decision to become a founder than for success (Begley & Boyd, 1987; Herron & Robinson, 1993). Leadership research has shown that leadership emergence is greatly affected by personality traits (Lord, DeVader & Alliger, 1986) while leadership success is less clearly related to personality factors (Landy, 1989). Thus, in the following, we shall differentiate between emergence of entrepreneurship and success of small-scale enterprises even though this differentiation is not always made in the literature our review is based on.

Personality and Emergence of Entrepreneurship

Studies on the emergence of entrepreneurship often study differences in personality characteristics between entrepreneurs and other populations, in particular managers. McClelland's (1961) early work on need for achievement initiated many studies on characteristics of the entrepreneur. A high need for achievement leads to a preference for challenging tasks of moderate difficulty rather than routine or very difficult tasks, to take personal responsibility for one's performance, to seek feedback on performance, and to look for new and better ways to improve one's performance. As described in the introduction, we would like to provide a first quantitative review even though the literature does not really allow a proper meta-analysis. Whenever there were a minimum of five studies providing the necessary data, the results are presented quantitatively. In entrepreneurship research both independent and dependent variables are often operationalized in very different ways; therefore, such a quantitative review always carries the risk of comparing apples and oranges. However, it still gives the reader additional information that cannot be obtained from a purely verbal review. Table 3.1 presents a quantitative comparison of business owners with other groups, mostly managers. We converted all data into one correlation. A high correlation indicates a close relationship between entrepreneurs' personality characteristics and being an entrepreneur.

Table 3.1 Need for achievement of business owners compared to other samples

Study	<i>N</i>	<i>r</i>	Comments
Begley & Boyd (1987)	239	0.15*	Founders vs. non-founders
Cromie & Johns (1983)	83	0.01	Entrepreneurs vs. managers
Utsch et al. (2000)	177	0.50**	Business owners vs. managers
Bonnett & Furnham (1991)	190	0.09	Founders vs. non-founders
Green, David & Dent (1996)	207	0.22**	Entrepreneurs vs. managers
Weighted mean correlation	896	0.21**	

Note: * $p < 0.05$ ** $p < 0.01$

Table 3.1 indicates that three of the five studies reviewed found entrepreneurs to be significantly higher in need for achievement than the comparison group. Two studies reported non-significant results. The weighted mean correlation is positive and significant. Thus, there is empirical support that entrepreneurs are higher in need for achievement than other populations. McClelland's need for achievement theory was widely criticized, most notably his use of the projective Thematic Apperception Test to measure needs because it does not have high reliability. However, its validity is high (Spengler, 1992). Additionally, the theory was applied to whole countries. But, since the theory focuses on individual motives the theory is strongly influenced by Western culture and values (Triandis, 1994).

Locus of control, a concept from Rotter's (1966) social learning theory, was tested with regard to characteristics of entrepreneurs. People with an internal locus of control believe themselves to be in control of their destiny. People with an external locus of control believe themselves to be controlled by others or by chance events. One might expect that business owners have a higher internal locus of control than other populations. However, results here are less consistent than results on need for achievement (Table 3.2). While Green, David and Dent (1996) reported negative relationships ($r = 0.05$, ns.), Cromie and Johns (1983) found strong differences between entrepreneurs and managers (Table 3.2). The weighted mean correlation indicates that there is a small, but positive relationship between internal locus of control and being an entrepreneur. Given the huge differences in the results of different studies, there seems to be some other variable moderating the relationship between internal locus of control and becoming a small business owner.

Table 3.2 Locus of control of business compared to other samples

Study	N	r	Comments
Begley & Boyd (1987)	239	0.01	Founders vs. non-founders
Cromie & Johns (1983)	83	0.31**	Entrepreneurs vs. managers
Brockhaus & Nord (1979)	93	0.02	Entrepreneurs vs. moved and promoted managers
Bonnett & Furnham (1991)	190	0.18*	Rotter's economic locus of control
Rahim (1996)	526	0.22**	Entrepreneurs vs. managers
Green, David & Dent (1996)	207	-0.05	Entrepreneurs vs. managers
Weighted mean correlation	1338	0.13**	

Note: * $p < 0.05$ ** $p < 0.01$

Additional personality variables have been addressed in various studies. However, they do not allow a quantitative review because they are typically single studies that have not been replicated. Utsch et al. (in press) found entrepreneurs to be higher in innovativeness, competitive aggressiveness, and autonomy than managers. In Begley and Boyd's (1987) study, business founders were higher in risk-taking and had more tolerance to ambiguity than non-founders. Entrepreneurs were higher on a primacy of business scale (Cromie & Jones, 1983) and on intrinsic work motivation (Green, David & Dent, 1996). In contrast to Green, David and Dent (1996), Bonnett and Furnham (1991) reported that entrepreneurs scored higher on Protestant Work Ethic beliefs.

Business owners were frequently compared to managers, because managers are considered as a hard comparison group. There are good arguments for other

contrasts as well. For example, when studying the emergence of entrepreneurship it is better to select people before they have become self-employed instead of comparing entrepreneurs and managers. Brandstaetter (1997) compared people interested in starting up their own company, entrepreneurs who had taken over a business, entrepreneurs who had set up their own business, and employed managers. The four samples were compared by using a 16PA adjective rating scale (Brandstaetter, (1987), a measure that is closely related to the 16-Personality-Factor-Questionnaire (Schneewind, Schroeder & Cattell, 1983). Personality characteristics of founders were similar to those of people who were interested in starting up their own company. However, founders were more stable and more independent than were entrepreneurs who had taken over a business or than managers. While such a design is strictly speaking not appropriate to detect causal relationships, it provides further insight into the issue of emergence. For example, since people who are interested in founding are quite similar to the founders, one can question the argument that founding an enterprise changes one's self-interpretation.

The literature about the emergence of entrepreneurship highlights that entrepreneurs are different from managers and other groups. However, the trait approach was widely criticized in entrepreneurship research because of the greater diversity among entrepreneurs themselves than between entrepreneurs and non-entrepreneurs. There is no average or typical venture creation (Gartner, 1985, p. 697). Gartner recommended a behavioristic approach to new venture creation. It is more important to ask what people do to enable venture creation rather than evaluating traits.

More recently, researchers have developed more sophisticated personality concepts. An attitude approach is concerned with a close match of an attitude and the behavioral requirements to be an entrepreneur (Fishbein & Ajzen, 1975). The Entrepreneurial Attitude Scale (EAO), which consists of achievement, self-esteem, personal control, and innovation is a fairly good instrument to distinguish entrepreneurs from non-entrepreneurs (Robinson, Stimpson, Huefner & Hunt, 1991). The task motivation theory is an additional example of studying entrepreneurs' characteristics on a more specified level (Miner, Smith & Bracker, 1989). Task motivation is a motivational pattern closely related to achievement motivation theory. The motivational pattern consists of five different roles: self-achievement, avoiding risks, feedback of results, personal innovation, and planning for the future. Task theory includes a look at the tasks to be performed, and thus represents the domain of entrepreneurship. Miner, Smith, and Bracker (1989) as well as Bellu (1988) could differentiate managers from entrepreneurs in their total task motivation, even though the five sub-scales distinguished between entrepreneurs and managers differentially in these two studies.

The trait theory and Gartner's (1988) position do not actually contradict each other; they just focus on different levels of specificity. Gartner recommended studying the entrepreneur on a very specific level of his or her

behavior. Personality traits represent broad classes of behaviors, which are indeed weak predictors of specific behavior (Epstein & O'Brian, 1985). Task theory and attitude approaches come between the two positions because they focus on attributes representing classes of behavior without assuming them to be stable and situationally independent.

Personality and Success

Personality characteristics of business owners were not only studied with respect to the emergence of entrepreneurship, but also with respect to the entrepreneurial success. A typical approach in this area is to ask business owners to fill in a general personality questionnaire and then correlate the personality scales with performance measures. Singh (1988) for example used five questionnaires that measured 29 scales. The author found that 8 personality scales were related positively to growth, 3 scales were negatively related, and 18 scales were unrelated to growth. A major problem of an approach like this is that the study is purely descriptive and lacks theory. Why should all the 16 personality factors (16PF) be related to small business success? Which factors are of particular importance? Researchers first have to identify a range of entrepreneurial characteristics, and then to apply these specific characteristics to the field (cf. Cromie & Johns, 1983). Timmons, Smollen and Dingee (1985) for example presented a list of 15 learnable and four not-so-learnable characteristics of entrepreneurship. The most frequently studied personality characteristics were need for achievement, risk-taking, and internal locus of control.

Need for achievement

McClelland (1961) related the concept of achievement motivation to economic development and growth. Frey (1984) supported the result that need for achievement of nations leads to economic development. Cooper and Gimeno-Gascon (1992) reported that three out of four studies found a positive relationship between a need for achievement and the success of small-scale enterprises. One study showed that personality characteristics can change over time. It is possible to increase this motivation through training programs which then, in turn, increase business performance (Mirron & McClelland, 1979). Similarly, our review provided positive results in three out of six studies (Table 3.3). The weighted mean correlation provided significant positive results. However, the mean correlation is quite small. Possibly other variables moderate the need for an achievement-success relationship.

Risk-taking

Chell, Haworth and Brearley (1991) described the risk-taker as someone 'who in the context of a business venture, pursues a business idea when the

Table 3.3 Need for achievement of business owners and its relationship with success

	<i>N</i>	<i>r</i>	Comments
Begley & Boyd (1987)	147	0.05	Mean correlation of 3 financial measures
Lorrain & Dussault (1988)	64	-0.04	Successful/unsuccessful entrepreneurs
Rauch & Frese (1997) ¹	71	0.27*	Achievement motivation was a second order factor consisting of higher order need strength, need for achievement, optimism, internal locus of control, self-efficacy
Miller & Toulouse (1986)	97	0.01	Mean correlation on 5 success measures
Goebel & Frese (1999)	98	0.28**	
Spencer & Spencer (1993)	24	0.49*	Successful/unsuccessful entrepreneurs
Weighted mean correlation	501	0.13**	

Note: * $p < 0.05$ ** $p < 0.01$

Only the Irish sample is presented because the West German sample is presented in Goebel & Frese (1999).

Table 3.4 Risk-taking of business owners and its relationship with success

Study	<i>N</i>	<i>r</i>	Comments
Begley & Boyd (1987)	147	-0.06	Mean correlation of 3 financial measures
Lorrain & Dussault (1988)	64	0.00	Successful/unsuccessful entrepreneurs
Brockhaus (1980)	31	-0.01	<i>N</i> had to be estimated
Duchesneau & Gartner (1990)	26	-0.39*	Successful vs. unsuccessful entrepreneurs
Singh (1988)	224	-0.18*	
Goebel & Frese (1999)	97	0.11	
Weighted mean correlation	589	-0.08*	

Note: * $p < 0.05$ ** $p < 0.01$

probability of succeeding is low' (p. 42). In general, people assume small business owners to be high risk-takers. However, the results of the quantitative review indicate that high risk-taking is negatively associated with business success (Table 3.4). The relationship is small.

However, according to Timmons, Smollen and Dingee (1985), successful entrepreneurs take calculated risks, a position which suggests a non-linear relationship between risk-taking and success. Similarly, Begley and Boyd (1987) found that risk-taking predicted success only up to a certain point beyond which risk-taking had a negative effect on success. Some inconsistencies about risk-taking and its relationship to success might be due to different perspectives of considering something as risky. From an observer's point of view a particular behavior might be viewed as highly risky while a business owner might see the same behavior as an attempt to minimize risk (Chell, Haworth & Brearley, 1991). Another issue is that to become an entrepreneur is risky but running a business in a risky way might be dangerous.

Locus of control

Rotter (1966) differentiated between internal and external locus of control. Since business owners with an external locus of control believe they are in the control of other people or chance events they are assumed to be less active in their daily work and thus, less successful. While only one study reported a significant positive relationship between internal locus of control and business success (Goebel & Frese, 1999), the weighted mean correlation of six studies was small but significantly positive (Table 3.5). Thus, there is empirical evidence for a relationship between internal locus of control and business success.

With regard to small business success other personality characteristics have been studied. Brandstaetter (1997, see above) showed that the same traits related to the decision of starting up a business were also related to business success. Emotional stability and independence correlated positively with

Table 3.5 Quantitative review of locus of control of business owners and its relationship with success

	<i>N</i>	<i>r</i>	Comments
Begley & Boyd (1987)	147	-0.08	Mean correlation of 3 financial measures
Brockhaus (1980)	31	0.29	No <i>N</i> of subgroups available
Duchsnau & Gartner (1990)	26	0.37	Success vs. failure
Lorrain & Dussault (1988)	62	-0.02	Successful/unsuccessful entrepreneurs
Miller & Toulouse (1986)	97	0.12	
Goebel & Frese (1999)	97	0.35**	
Weighted mean correlation	460	0.11*	

Note: * $p < 0.05$ ** $p < 0.01$

subjective success measures. Miner, Smith and Bracker's (1994) task motivation theory is an example of measuring personality characteristics at a more specific level (see above). All five subscales were related to success, the total task motivation index explained 15–24% of variance in growth measures. However, Baum (1995) reported that general traits operate through more specific concepts of competencies, business strategies, and growth motivation. This result confirms the theoretical position of Herron and Robinson (1993) that motivation and behavior mediate the personality–success relationship.

Personality Reconsidered

Personality factors have been criticized on both theoretical and empirical grounds. Gartner (1985) argued theoretically, that the diversity among entrepreneurs is much larger than differences between entrepreneurs and non-entrepreneurs. Since there is no average entrepreneur any personality description is found wanting. He therefore argues stopping looking for personality variables that have an impact on emergence and on success. Empirically, the overview of studies in this article shows that there are differences between entrepreneurs and managers, and that there is a relationship between personality and success, although the correlations found are not high.

However, both approaches—the personality proponents and their critics—have overlooked the significant advances that have been made in personality research during the last 20 years. We therefore think that there is good reason to be interested in personality again. However, one will have to use a more sophisticated theoretical approach, which is outlined in several points below.

1. A general trait can predict behavior (starting up a business) only through certain mediating processes (Epstein & O'Brian, 1985). The most important mediating processes are strongly related to actions (cf. the Giessen–Amsterdam model in Figure 3.1). Very similarly, Herron and Robinson (1993) argued that motivation is the mediator through which personality traits determine entrepreneurial behaviors. Baum (1995) showed that business strategies and growth motivation mediated the relationship between general traits and business outcomes. Rauch and Frese (1997) found that planning mediated the relationship between achievement orientations and success. Similarly, Goebel and Frese (1999) found that the relationship between personality and success is mediated by strategies. Thus, personality is related to business outcomes through more specific mediating processes.
2. Both the content of the personality variable and the level of specificity need to be defined carefully for the study. A general personality approach, such as when using the 16PF test (Cattell, Eber & Tatsouka, 1970) or the Big Five (Costa & McCrae, 1988) is not related to the content of entrepreneurship. Why should neuroticism, extroversion,

- openness, agreeableness, and conscientiousness be strongly related to entrepreneurial success? Thus, such studies will definitely lead to questionable results. On the other hand, there is strong evidence that a more specific trait (such as the achievement motive) is related to the decision to start up a company, as our overview shows. Fishbein and Ajzen (1975) and Bandura (1997) have argued forcefully for specific measures of personality and attitude/belief processes and they show that prediction is much higher with such approaches. For this reason, entrepreneurial orientation is more closely related to the decision to become an entrepreneur and even to success than these general traits (we shall describe the studies on entrepreneurial orientation later). Baum (1995) found that predictors that are closely related to entrepreneurial behaviour have stronger effects than more general predictors. In any case, one needs to do at least a rudimentary task analysis to carefully select those personality characteristics that are potentially related to the entrepreneurial task domain.
3. The discussion on entrepreneur's personality is very similar to the debate on leadership research. Early leadership research focused on the leader's personality (see reviews by Bass, 1990; Kirkpatrick & Locke, 1991). Later, the trait approach was criticized (Stodgill, 1948). The charismatic leadership theory reintroduced personality issues, but now these characteristics are specifically related to the domain of leading people (House, 1977). As in leadership research, entrepreneurship research should conceptualize entrepreneurs' characteristics in terms of more specific attributes instead of using broad trait measures. In the words of Robinson et al. (1991, p. 13): 'The problem is not the absence of psychological characteristics, but rather the theories and methods used to identify those characteristics.'
 4. Today's personality psychology would argue that the interaction between individuals' characteristics and situational conditions predicts entrepreneurial behavior better than any one of these factors alone (Magnusson & Endler, 1977). For example, only if the entrepreneur is active in an area where networks are important (e.g. consulting business), should extroversion play a role. Conscientiousness should play a role only in an area where there is a strong emphasis on quality control, and so on. Research on entrepreneurs should therefore take the situational demands into account.
 5. The impact of personality can vary depending on a situation being strong or weak (Mischel, 1968). In a strong situation there should be less impact of the personality than in a weak situation. When the entrepreneur is told that he has to develop a good business plan—otherwise he would not get money from the bank—it is unlikely that personality differences determine whether or not he will write a business plan. This is a strong situation. Craftspeople often work in strong situations and, therefore,

personality differences should play a smaller role in determining behavior in the crafts sector than in the new technology sector.

An example of a weak situation is when one has to decide whether one actually wants to start up a company. Thus, personality variables should be more important in the emergence of entrepreneurs than, for example, in a situation where the company has more than 200 employees (it is unlikely that one can escape the necessity to employ a professional manager at this point). Some authors argue that personality is more important for the emergence of entrepreneurship than for success (Herron & Robinson, 1993; Begley & Boyd, 1987; Utsch et al., 1999).

6. However, it should be clear that to a certain extent people actively select environments. Thus, the selection of a market niche is an influence on the environment. This depends on the goal-oriented strategy of an entrepreneur, which in turn is influenced by personality characteristics (Goebel & Frese, 1999). Obviously, it depends on the skills and abilities of entrepreneurs to perceive opportunities in the environment—again an area in which personality traits (e.g., intelligence) may play a role (Zempel, 1999).
7. Any single personality trait will never have a strong relationship with any outcome variables (such as making a decision to become an entrepreneur). The decision to start up a firm is probably due to a whole range of personality characteristics and not just to one. Thus, one should never expect a high correlation to appear and if it does, it may be an indicator of a badly designed study rather than an example of a 'smashing' empirical finding. Consequently, the multiple effects of several relevant personality characteristics rather than single traits should be analyzed.
8. Testing hypotheses at a given alpha level always implies the risk of rejecting a hypothesis even though the hypothesis is valid in reality (Beta-error). This risk is even higher when effects are small in general. Therefore, a non-significant result, such as a comparison of managers with a sample of only 31 business owners (Brockhaus & Nord, 1979) should not be overestimated.

Considering these arguments, it is obvious that one cannot expect strong main effects of personality on small business success. However, we have shown that personality is important, but we would expect small correlations since personality is related to success through mediating and moderating processes (see Figure 3.1).

Typologies

Since small-scale business owners represent a highly heterogeneous group, it makes sense to attempt to classify them into types and sub-groups. These

typologies differ in the extent to which they use different attributes, for example demographic characteristics, psychological characteristics, or business strategies. Crafts people and opportunists are often differentiated: Smith (1967) for example, carried out 52 interviews with owner/managers of manufacturing firms. 'Craftsman entrepreneurs' came from a blue-collar background, had a lower education and no management experience, and they restricted their source of finance to personal savings, money from relatives, or friends. Crafts people tended to have rigid firms. In contrast, 'opportunistic entrepreneurs' had a middle-class background, a broader education, management experience, they sought new opportunities, developed more innovative and more diverse strategies, delegated more, were proactive, and used many sources of finance. Opportunists tended to have adaptive firms. Firms of opportunistic entrepreneurs had higher growth rates than those of craftsmen (Smith & Miner, 1983). Woo, Cooper and Dunkelberg (1988) confirmed the two types of Smith's (1967) study. More recently, the inventor-entrepreneur was introduced as a third distinguishable type (Miner, Smith & Bracker, 1992). The inventor-entrepreneur had a certain craftsman-orientation with a high priority placed on product development and patent production.

Chell, Haworth and Brearley (1991) classified 31 firms by using personality characteristics, strategies, and demographic attributes. The prototypical entrepreneur is alert to business opportunities regardless of resources currently controlled, he is innovative, and he uses a variety of sources of finance. He is a high-profile image-maker and strives to be the best. He constantly tries to modify the environment and create situations which result in change. In contrast, the caretaker does not show any of these behaviors. Between the two extremes there are two other types which are less clearly defined. The quasi-entrepreneur is similar to the entrepreneur but does not have all of the characteristics of the entrepreneur, for example he is less innovative and less proactive. The administrator is more reactive and takes opportunities, but not regardless of current resources (Chell, Haworth & Brearley, 1991, p. 72).

By using psychological attributes, Miner (1996) categorized business owners into four different personality types. The 'personal achiever' is similar to the classical entrepreneur proposed by McClelland (1961). His characteristics are a need to achieve, a desire to get feedback, and to plan and to set goals, strong personal initiative, strong commitment to the venture, internal locus of control, and a belief in personal goals rather than those of others. The pattern of 'supersales persons' consists of five overlapping characteristics: a capacity to understand and to feel with another person, a desire to help others, a belief that social processes are very important, a need for positive relationships with others, and a belief that a sales force is crucial to carrying out company strategy. The 'real manager' possesses 13 characteristics that are similar to those of managers. Some of his characteristics are: a high supervisory ability, a need for occupational achievement, a need for self-actualization, positive attitudes towards authority, a desire to compete with others, directive in cognitive

style and so on. The fourth type, the 'expert idea-generator', is characterized by a desire to personally innovate, a belief in new product development, high intelligence, a high conceptual cognitive style, and a desire to avoid risks. Miner (1997) showed that firms founded by personal achievers had grown more than those founded by other types. There was also evidence that business owners who were characterized by more than one pattern were more likely to be successful.

Typologies have improved our knowledge about small-scale enterprises not only because they contributed to the description of entrepreneurs and their behavior but also because they contributed to theory development (Woo, Cooper & Dunkelberg, 1988; Doty & Glick, 1994). But there are also important criticisms. First, different researchers used different samples and different attributes to categorize enterprises. Most typologies have not been replicated. As a matter of fact, most typologies have not been adequately tested (e.g. with cluster analysis). A second problem is the labelling of the types. Woo, Cooper and Dunkelberg (1988) as well as Smith and Miner (1983) identified two distinct types of business owners and both studies used the terms 'craftsmen' and 'opportunists' to describe them. Did both studies identify the same type of business owners? Probably not, because both studies used different attributes to describe their typology. Third, typologies are simplistic because they focus on extreme or proto-typical configurations and only a small part of business owners fit exactly in a certain type. Chell, Haworth and Brearley (1991) tried to reduce that problem by introducing two intermediate types (quasi-entrepreneur, administrator). In the fourth, and probably the most important, critique it is argued that typologies are rather descriptive and often do not pay enough attention to theory development.

Human Capital

The human capital theory is concerned with the knowledge and experiences of small-scale business owners. The general assumption is that the human capital of the founder improves small firms' chances of survival (Brueder, Preisdoefer & Ziegler, 1992). Human capital acts as a resource. Human capital makes the founder more efficient in organizing processes or in attracting customers and investors. Different studies used various operationalizations of human capital. Brueder, Preisdoefer and Ziegler (1992) distinguished between general human capital—years of schooling and years of work experience—and specific human capital—industry-specific experience, self-employment experience, leadership experience, and having a self-employed father. In Table 3.6, we aggregated various measures of human capital to compare the results of different studies. The general trend indicates a small positive relationship between human capital and success.

In different studies that were conducted there appears to be a relatively consistent relationship between business owners' level of education, their

Table 3.6 Human capital of business owners and its relationship with success

	N	r	Comments
Chandler & Hanks (1996)	102	0.15	Same sample as in Chandler & Jansen (1992)
Chandler & Jansen (1992)	134	0.07	Founder's competencies
Duchesneau & Gartner (1990)	26	0.42*	Successful vs. unsuccessful entrepreneurs
Goebel & Frese (1999)	91	0.22*	
Lussier (1995)	216	-0.11	Successful vs. failed enterprises
Chandler & Hanks (1994)	155	0.19*	Mean correlation of 2 success measures
Lorrain & Dussault (1988)	69	0.14	Successful/unsuccessful entrepreneurs
Weighted mean correlation	793	0.09*	

Note: * $p < 0.05$ ** $p < 0.01$

industry-specific experience, and their management experience on the one hand and success on the other hand (cf. Cooper, Dunkelberg & Woo, 1988; Dyke, Fischer & Reuber, 1992; Gimeno, Folta, Cooper & Woo, 1997; Bruederl, Preisendoefer & Ziegler, 1992). Goebel (1995) showed that a business owner's personality explained more variance in success than his or her human capital. Additionally, planning and leading style mediated the relationship between human capital of business owners and success.

The human capital theory has an important implication. Since it is concerned with knowledge and capacities, the theory implies processes as well: human capital can be trained and improved. Additionally, if human capital acts as a resource it might be interesting to study the human capital of employees in small-scale enterprises and its implications on success as well. In manufacturing settings it was shown that a human resource management (HRM) system was related to performance particularly when combined with a quality manufacturing strategy (Youndt, Snell, Dean & Lepak, 1996).

In summary there is some support for the human capital hypotheses. However, different studies point out different aspects of human capital to be important. Since our quantitative review showed a small relationship between human capital and success (Table 3.6), it may very well be that small improvements of performance are not worth the effect of human capital unless the firm is in a situation where small differences in performance affect its survival. Moreover, human capital only functions via concrete goals and behaviors. Therefore, the Giessen-Amsterdam framework includes the proposition that human capital is related to business success via goals and strategies (Figure 3.1).

GOALS

Goals and objectives are often not separated from strategies in management theory (exceptions are Schendel & Hofer, 1979 and Venkatraman, 1989). A psychological concept would relate goal development and goal decision to a task. However, goals differ from strategies because strategies imply an action. Strategies (and tactics) are attempts to translate the goals into actions (Frese, 1995; Hacker, 1985).

Klandt (1984) distinguished between goals related to the start up of an enterprise and goals related to the existing enterprise. Goals or motives to become self-employed can be categorized into push and pull factors (Stoner & Fry, 1982). Push factors imply that a current situation is perceived as dissatisfying. By comparing enterprises in 10 different countries over a period of more than 30 years, Bögenhold and Staber (1990) found a positive relationship between self-employment rates and unemployment rates. The authors concluded that unemployment leads to self-employment. Similarly, Galais (1998) reported that in East Germany, 47% of business owners stated that unemployment had been a motive for becoming self-employed as compared to 8% in West Germany. The unemployment rate was three times higher in East Germany compared to West Germany (Statistisches Bundesamt, 1994). Brockhaus and Nord (1979) found that entrepreneurs were less satisfied with their previous work than promoted managers. Thus, there is support for the push hypothesis, even though there are regional differences. When self-employment is considered as a positive future option, pull factors might constitute the main reasons for becoming self-employed. By using factor-analysis, Scheinberg and McMillan (1988) identified six motives for becoming self-employed: need for approval, perceived instrumentality of wealth, degree of communitarianism, need for personal development, need for independence, need to escape. Only the last factor represented a push factor. Shane, Kolvereid and Westhead (1991) found a four-factor solution of reasons for founding a new firm: recognition, independence, learning, and roles. One can argue, however, that pull factors were underrepresented in this study because there were no items on unemployment or on previous jobs. Despite the fact that several studies have shown that different motives lead to business start ups, once the enterprise is established these motives have minimal influence on subsequent business success (Birley & Westhead, 1994; Galais, 1998).

With regard to the goals of existing enterprises, it is important to distinguish between growth targets and autonomy targets (Katz, 1994). Growth goals are related to growth expectations (Davidsson, 1989) as well as to business growth (Baum, 1995).

According to goal-setting theory, high and specific targets are main motivators in working organizational settings and predict performance (Locke & Latham, 1990). The theory also applies to small-scale enterprises (Baum, 1995; Frese, Krauss & Friedrich, 2000). Leadership theory has recently

focused on visionary (or charismatic, transformational) leadership. The importance of visions is also discussed in the entrepreneurship literature. Collins and Porras (1994) indicated that visionary companies have a stronger organizational culture and they are more successful than non-visionary companies. Baum, Locke and Kirkpatrick (1998) found direct and indirect causal effects of vision attribute, vision content, and vision communication on small-venture performance. In entrepreneurial companies visions might be more important than in bigger organizations because of the relatively close contact between entrepreneur and employees, customers, and suppliers (Baum, Locke & Kirkpatrick, 1998). Therefore, goals and visions are important areas in entrepreneurship research.

STRATEGIES (CONTENT, PROCESS, ENTREPRENEURIAL ORIENTATIONS)

Chandler (1962), Ansoff (1965), and Porter (1980) emphasized that strategies are particularly important for small-business success. Ten years ago, Low and McMillan (1988) criticized the fact that only a few good empirical studies had been done in the area of entrepreneurship strategies. Strategies can be studied on the firm and on the individual owner's level. It is important to distinguish between three dimensions of business strategies (Figure 3.2). Olson and Bokor (1995) distinguished between strategic processes and strategic content. Strategic content is concerned with the type of decision. The strategic process focuses on strategy formulation and implementation. More recently, researchers have focused on firm-level entrepreneurship. Entrepreneurial orientation refers to processes, practices, and decision-making activities that lead to new entries (Lumpkin & Dess, 1996). In our opinion entrepreneurial orientation can be conceptualized as a third strategic dimension. Whereas strategic content is concerned with a specific type of strategy, entrepreneurial orientation represents a general strategic orientation that is dependent on environmental and organizational factors. The framework in Figure 3.2 shows that each type of strategy is implemented through different categories of the strategic process, based on a certain entrepreneurial orientation. Thus, all the three strategy dimensions can be crossed with another. The following three paragraphs will discuss each dimension separately.

Strategic Content

Strategic content is concerned with the type of business decisions. Porter's (1980) and Miles and Snow's (1978) typologies of strategies initiated some research on small-scale enterprises. Porter (1980) distinguished three generic strategies: focus, differentiation, and cost leadership. A focused strategy means concentrating on a particular product or market segment. A differentia-

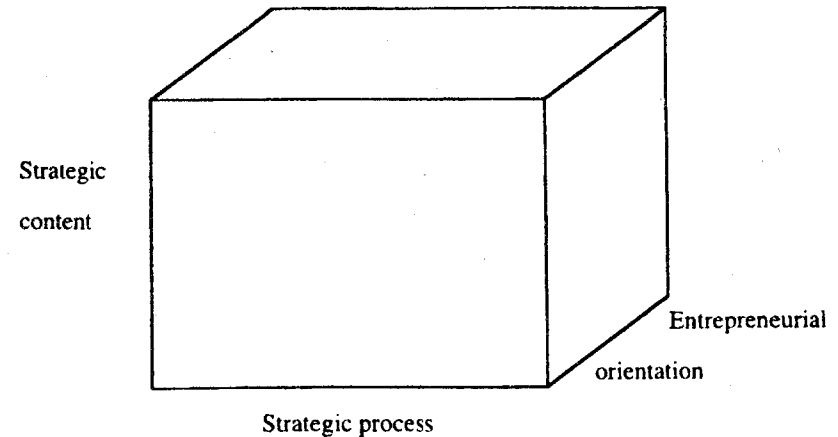


Figure 3.2 Three dimensions of business strategies

tion strategy means creating a product or service that customers see as unique. Cost leadership focuses on becoming a low-cost producer in an industry without sacrificing quality and service. With regard to new entries, focused strategies have several competitive advantages because they avoid heavy competition with established enterprises and are able to focus their limited resources on a narrow market segment. Thus, the theory would predict that focused strategies outperform broad strategies. With a small sample of 17 ventures, Sandberg and Hofer (1987) analyzed the relationship between Porter's (1980) generic strategies and success. In contrast to the theory, there was evidence that differentiated strategies outperformed focused strategies. Sandberg and Hofer (1987) found even stronger support for a contingent strategy-success relationship. They found that in an industry at an early stage of evolution, broad strategies outperformed focused strategies. In an industry at a late stage of evolution narrow strategies were better than broad strategies. Similar results were found in a survey of 491 independent bank formations over a 5-year period: broad strategies were better than focused strategies (Baumford, Dean & McDougall, 1997). Successful craft retailers used cost leadership and differentiation strategies more often, while they did not use focused strategies (Kean, Niemeier & Miller, 1996). McNamee and McHugh (1989) found differentiated strategies to be related with profitability in the clothing industry but not focused strategies and cost leadership. These findings contradict Porter's (1980) assumptions and suggest that focused strategies are not better than broad strategies.

The Miles and Snow (1978) typology classifies firms according to four different strategic orientations: prospectors, defenders, analyzers, and

reactors. Prospectors constantly seek new opportunities and focus on product development. In contrast, defenders try to control secure niches in their industries and do not engage in product or market development. Analyzers combine characteristics of both prospectors and defenders. Reactors do not follow a conscious strategy. The typology proposed that defenders, analyzers and prospectors will outperform reactors. Reviewing the empirical literature on the Miles and Snow typology, Zahra and Pearce II (1990) questioned the validity of the typology as well as the link between strategic types and performance. However, by comparing Miles and Snow's (1987) typology with Minzberg's (1983) theory, Miles and Snow's typology was confirmed, the configurational fit explained 24% in organizational effectiveness (Doty, Glick & Huber, 1993). Similarly, Conant, Mokwa and Varadarajan (1990) replicated the Miles and Snow typology successfully. Results suggest that prospector, analyzer and defender organizations outperform reactor organizations.

Olson and Bokor (1995) used a single dimension classification of strategies, namely product/service innovation. Schumpeter (1935) and Drucker (1985) argued that innovative behavior is a core characteristic of entrepreneurs. Moreover, innovative strategies were described to be successful particularly for small enterprises because they are seen as useful attempts to maintain market share, to produce below price level or to maintain flexibility (Heunks, 1996). Innovativeness can be defined as a characteristic of an individual person and innovation implementation effectiveness depends on a group of persons and thus is a characteristic of an organization (Klein & Sorra, 1996). The literature on innovative strategies focused on the latter.

Several carefully conducted studies have shown a relationship between innovative strategies and success of small-scale enterprises (Brouwer & Kleinknecht, 1996; Roper, 1997; Heunks, 1998). However, there were non-significant results as well (Olson & Bokor, 1995). Since evidence of the innovativeness-success relationship is not really conclusive, some authors tested successfully moderating variables of the innovation-success relationship. They showed that innovations are more important for very small enterprises with less than 50 employees (Pfirman, 1994; Brouwer & Kleinknecht, 1996; Heunks, 1996). Other moderator variables were formal planning (Olson & Bokor, 1995), environmental conditions (Miller & Frisen, 1983; Acs & Gifford, 1996), and competitive position (Brouwer & Kleinknecht, 1996).

A weakness of research on strategic content is its lack of sophisticated classification systems. Business strategy categorizations, such as described by Porter (1980), fall short because they are related towards product, markets, and competitors only. A firm's strategy can also be related to suppliers, customers, employees, and environmental conditions. Therefore, we need to develop strategy classifications that reflect the whole domain of actions initiated by small-scale enterprises.

Strategic Process Research

The strategic process is concerned with the formulation and implementation of strategic decisions (Olson & Bokor, 1995). Schendel and Hofer (1979) identified six tasks that constitute the process of strategic management: goal formulation, environment analysis, strategy formulation, strategy evaluation, strategy implementation and strategic control. However, most research on strategic processes is concerned with planning and its impact on small-business success. In numerous books and articles it has been taken for granted that planning is of particular importance to small firms' performance (Ryans, 1997). Therefore, training programs for entrepreneurs usually include the development of start up plans. However, empirical investigation of the planning-success relationship did not lead to consistent results. While some carefully designed studies have shown that planning in the founding phase was related to success of small businesses (Ackelsberg & Arlow, 1985; Bracker, Keats & Pearson, 1988; Jungbauer-Gans & Preisendoerfer, 1991), there have been contradicting results as well (Lumpkin, Shrader & Hills, 1998; Lyles, Baird, Orris & Kuratko, 1995; Robinson & Pearce, 1983; Shuman, Shaw & Sussman, 1985). In an early review, Robinson and Pearce (1984) concluded that many small-scale enterprises do not plan at all. However, most studies indicated that enterprises that do plan are more successful. In a more recent meta-analysis Schwenk and Shrader (1993) compared 14 studies on the planning-success relationship in small-scale enterprises. They found a small, positive relationship between planning and performance (effect size $d=0.40$) and concluded that other variables might moderate the planning-success relationship.

Unfortunately, not many studies analyzed the conditions under which performance is enhanced by planning. In a cross-cultural study Rauch and Frese (1997) showed that planning is differentially important in different countries. Planning is valued and important in a culture with high values in uncertainty avoidance, because plans can be seen as an attempt to get control of an uncertain future (Thurston, 1983). In Ireland planning had a negative effect on success, most probably because the environment demanded flexibility rather than strict adherence to a plan. Ireland is one of the cultures with the lowest uncertainty avoidance in Europe (Hofstede, 1991). In Germany, a country with a high level of uncertainty avoidance, planning was positively related to success. In a longitudinal study, the planning-success relationship was moderated by environmental conditions (Rauch & Frese, 1998). Planning predicted success in a hostile or uncertain environment but not in a certain and non-hostile environment. Risseuw and Masurel (1993) found that in high dynamic environments planning was negatively correlated with success. Thus, environmental conditions are moderating the planning-success relationship. In summary, there is some evidence that planning is related to small-business success, but further research is called for to clarify the conditions under which planning might be a powerful tool.

Frese, Van Gelderen and Ombach (1998) looked at planning and proactivity at the same time. They differentiated between complete planning, critical point strategy, opportunistic strategy, reactive strategy, and habits. The main finding was that a reactive strategy is negatively related to success. This could be shown to be a causal process and it was replicated in three studies in Africa (all of them reported in Frese, 2000). These results were confirmed by research on the Miles and Snow (1978) typology (see section above on strategic content). The reactor firm, which is not following a conscious strategy, was least successful. Thus, a reactive strategy has negative consequences for small-scale enterprises.

Entrepreneurial Orientation

The empirical investigation of 'entrepreneurship' was a major topic in small-scale business research. But criticism of viewing entrepreneurship as an individual's psychological profile has led to the operationalization of entrepreneurship as a firm-level behavior (Covin & Slevin, 1986). We have already discussed the level-of-analysis issue earlier (see first section above).

According to Covin and Slevin (1986), entrepreneurial firms are those in which top managers employ entrepreneurial management styles and operating management philosophies. The entrepreneurial behavior of those firms focuses on risk-taking, innovation, and proactiveness. Lumpkin and Dess (1996) conceptualized entrepreneurial orientation to consist of five dimensions: innovation, proactiveness, risk-taking, autonomy and competitive aggressiveness. Venkatraman (1989) identified six dimensions of strategic orientation: aggressiveness, analysis, defensiveness, futurity, proactiveness, and riskiness. In Covin and Slevin's (1986) conceptualization of entrepreneurial orientation the dimensions covary, whereas Lumpkin and Dess (1996) suggested that the dimensions may vary independently, depending on the environmental and organizational context.

Since the concept of entrepreneurial orientation is relatively new, there is a limited body of empirical literature on that concept. Tan (1997) showed that the strategic orientation of small firms is related to the business environment. Innovativeness, proactiveness, and risk-taking were positively correlated with environmental dynamism and complexity. Entrepreneurial orientation was studied with respect to small-firm performance as well. Covin and Slevin (1986) showed that entrepreneurship was highly related with company performance ($r=0.39$, $p<0.01$). Similarly, Wicklund (1988) reported strong direct relationships between entrepreneurial orientation and performance. Significant, but smaller relations between entrepreneurial orientation and success were found by Venkatraman (1989) and by Brown and Davidsson (1998). Lumpkin and Dess (1996) pointed out that the relationship between entrepreneurial orientation and success is contingent on environmental and organizational factors. Dess, Lumpkin and Covin (1997) analyzed a sample of

32 firms and found that entrepreneurial strategy-making is most strongly related with success when combined with low-cost strategy and high environmental uncertainty.

The concept of entrepreneurial orientation is relatively new and therefore it may be too early to assess its implications for small-scale enterprises. However, it would be interesting to evaluate the relationship between individual- and organizational-level entrepreneurship. Koop, De Reu and Frese (2000) found, for example, that entrepreneurial orientation of African (Ugandan) micro-enterprise owners was highly related to success. Moreover, this study suggests that personal initiative by the owner/manager may be the psychological characteristic that is behind the concept of entrepreneurial orientation (Frese & Fay, 2000).

ENVIRONMENTAL CONDITIONS

Each enterprise is rooted in a specific environment. Boulding (1978) defined environment in a broad way as everything else outside a particular organization. Environment can be conceptualized at different levels of specificity (Castrogiovanni, 1991). At a specific level, environment implies resources available to the organization. The geographical or cultural context of organizations represents a broad macro-environmental level. Within each environmental level there are different dimensions of the environment.

The Ecological Perspective

Ecologists are concerned with changes in organizational populations (Aldrich & Wiedenmayer, 1993). A central theoretical assumption is that the environmental shapes rates of entry, mortality, or changes of organizations (Singh, 1990). The ecological model draws upon the natural selection paradigm: an organization is subjected to environmental forces that have an effect on survival rates. Thus, the environments select the 'fittest' organizations. The ecological approach is concerned with the aggregate- or macro-environmental level and, therefore, industrial-level data are typically used within this theory.

The concepts 'liability of newness' and 'liability of smallness' are of particular interest for small-scale enterprises. Businesses start up with the 'liability of newness'. This means that newly founded firms have a higher risk of failure than older organizations (Hannan & Freeman, 1984; Singh, Tucker & House, 1986). Enterprises that survived the initial risk have reduced mortality rates because the environment selected only the strongest organizations. However, some studies support a non-linear relationship between age and survival. Bruederl, Preisendoerfer and Ziegler (1992) found support for a liability of adolescence: small businesses have a low mortality rate immediately after starting up. Then, the mortality rate increases to a maximum (after

approximately 10 months of existence). Thereafter, the mortality rate declines in accordance with the liability of newness hypothesis.

The concept 'liability of smallness' describes the higher risk of failing for smaller organizations compared to bigger organizations. Both concepts are confounded because most new organizations tend to be small. Many studies do not separate these two effects adequately (Singh, 1990). However, there is empirical support for an independent effect of liability of smallness (Bruederl, Preisendoerfer & Ziegler, 1992).

'Density dependence' refers to processes that depend on the number of organizations in a population (Aldrich & Wiedemayer, 1993). Density dependence should affect business survival because it increases competitive pressures and resource-scarcity. Carroll and Hannan (1989) found that density at the time of founding has a positive effect on mortality rates in five different populations.

Dean and Meyer (1996) related characteristics of the industry environment to the emergence of new ventures. One aspect of industry environment was industry dynamism, which included increasing demands, modification of demands, and technological development. A second measure was on entry barriers, which refers to factors that were erected against new entries. The third dimension was organizational inertia, which refers to factors that constrain existing firms from taking advantage of already existing opportunities. Industry dynamism organizational inertia were positively related to venture formations. Entry barriers constrained venture creation.

The ecological perspective is criticized because of its determinism. The only possible thing an entrepreneur can do is to start up the business at the right time. The concept ignores the fact that individuals behave actively in a certain environment. The entrepreneur may adapt to a certain environment, but he may also select a specific environment or may try to change the environment. A company, for example, that tries to satisfy the needs of customers with specific preferences changes the environment. According to Aldrich and Wiedemayer (1993), the trait approach is complementary to the ecological approach: the first implies micro-level analysis whereas the latter involves a macro-level approach. In contrast to the ecologists' view, the strategic choice perspective assumes that organizations are able to shape their environment (Child, 1972).

The Task Environment and Contingency Approaches

Research about the task environment is concerned with how the individual enterprise interacts with customers, competitors and suppliers. A relatively broad body of empirical literature already exists on this environmental level. Dess and Beard (1984) categorized task environment into three bipolar dimensions: complexity, dynamism, and munificence. Complexity describes the homogeneity versus the heterogeneity of an environment. In a complex environment it is more difficult to get and to consider all the necessary infor-

mation than it is in an easy environment. Dynamism describes the variability and unpredictability of the environment. Munificence falls into two subconcepts: ease of getting customers and ease of getting capital.

Sharfman and Dean (1991) showed with industry-level data that munificence had a non-significant negative relationship with performance, but that complexity and dynamism were positively related to success. Dynamism explained 32% of the variance of company performance. Thus, an unfavorable environment has positive consequences on business outcomes. This sounds implausible but immediately becomes more plausible if one realizes that they studied surviving companies. However, we also know from stress inoculation research, that reinterpreting stressors as challenges helps people to deal with stressors. Thus, having mastered challenges in the past leads to higher competence to deal with stressors in the future (Meichenbaum, 1985). Similar results were found by Shane and Kolvereid (1995) who studied small-scale enterprises in three countries. Results indicated that firm performance was highest when the national environment was perceived as less favorable. According to Swaminathan (1996) environmental conditions are of particular importance for newly founded enterprises because they have long-term consequences for business strategy, structure, and success. He showed that organizations founded in adverse environments have a higher initial mortality rate. But beyond a certain age, the surviving organizations had a lower mortality rate than those of organizations founded in less adverse environments.

The contingency theory has already been discussed when reviewing literature about the personality-success relationship (see section above on personality reconsidered). In this section it is assumed that environmental conditions are moderating the relationship between business strategies and success. In contrast to ecological theories, the successful business owners are actively assessing a given situation and then choosing the strategies that are most appropriate in that situation.

Sandberg and Hofer (1987) analyzed the industry structure and its impact on the relationship between strategies and venture performance. They found that in an industry at an early evolutionary stage, broad strategies outperform focused strategies. If the industry is at a late evolutionary stage, focused strategies are better than broad strategies. Romanelli (1989) analyzed a sample of 108 firms that produced minicomputers. He found that when industry sales are increasing generalists have a higher likelihood of early survival than specialists. When sales are declining, efficient organizations have a greater chance of surviving than aggressive organizations. Thus, a change in industry sales is an important contingent factor.

Covin and Slevin (1989) analyzed performance implications of small businesses in hostile environments. In a hostile environment, an organic structure and an entrepreneurial strategic posture were related to high performance, while in a non-hostile environment, a mechanistic structure and a conservative strategic posture were related to success. Similarly, competitive aggressiveness

was related to performance in hostile environments, while it had negative consequences in non-hostile environments (Covin & Covin, 1990). Zahra (1996) showed that environmental conditions moderated the form and the strength of the relationship between technology strategy and business success. Pioneering, for example, was strongest related to success in dynamic environments, while followership was better in hostile environments.

Through the contingency theory our knowledge in the field has improved. The entrepreneur or the business can act on a given situation. Success is not determined by the environment but by the strategy-environment fit. However, we need to develop a system to classify contingent factors.

OTHER ISSUES OF PSYCHOLOGICAL ENTREPRENEURSHIP RESEARCH

While the literature review was focusing on areas which are frequently evaluated and which are relevant from a psychological point of view, there are other important approaches to entrepreneurship we want to summarize briefly in this section.

A network approach assumes that the entrepreneur's ability to organize and coordinate networks between individuals and organizations is critical both for starting up a company and for business success. One can differentiate between formal networks (banks, Chamber of Commerce) and informal networks (friends, previous employers). Birley (1985) showed that formal support sources were hardly used, the institutions mostly mentioned being banks. Informal networks were used more often and were considered to be most helpful. Bruederl and Preisendoerfer (1998) showed that network support is related to both survival and growth of newly founded enterprises. Support from friends and relatives was more important than support from business partners, former employers, and coworkers. Related to the network approach, some researchers focused on the central role of information-seeking activities. Small business owners deal with a wide range of issues and they often have to make decisions while facing time and resource constraints. However, small business owners hardly ever use external information sources such as expert advice (Pineda, Lerner, Miller & Phillips, 1998). Information-seeking activities appeared to be dependent on the type of decision. Product-related decisions were correlated with more information seeking compared to employee-related or technical decisions. Another study showed that information-seeking activities are related to environmental threats and opportunities (Lang, Calantone & Gudmundson, 1997). Welsch and Young (1982) found that entrepreneurs' personality was related to the use of specific sources of information. Internal locus of control was positively related to the use of all information sources categories, while risk-taking correlated only with the use of personal sources of information.

Organizational life-cycle models have also been tested in entrepreneurship research. It is assumed that small enterprises face different sets of critical variables, depending on their stage of development. Dodge and Robbins (1992) tested a four-stage model that differentiated between formation, early growth, later growth, and stability. Planning was an important problem area in early live stages, while management problems become more important in later live stages.

Leadership issues are also discussed in entrepreneurship literature. Eggers, Leahy and Churchill (1996) studied 112 entrepreneurial companies by using 20 behavioral scales that measure CEO's leadership and management skills. Visionary leadership, communication, delegating, and performance facilitation were positively related to success. A longitudinal study found that visions of small business owners affect company performance directly as well as indirectly through vision communication to employees (Baum, Locke & Kirkpatrick, 1998). Another longitudinal study showed that participation of employees predicts growth and size of enterprises in the long run (Rauch & Frese, 1999).

Cognitive factors were related to entrepreneurial outcomes as well. Different factors were evaluated, such as cultural values (McGrath, MacMillan & Scheinberg, 1992), attributional theory (Gatewood, Shaver & Gartner, 1995), and problem-solving styles (Buttner & Gyskiewicz, 1993). These are new strands of research that may become important in the future. Other issues of this type are concerned with learning, women and entrepreneurship, minorities and entrepreneurship, human resource management, learning and training, feedback processing, transition from business founder to manager, financing, organizational culture and others. Strangely enough, many issues that are of importance in social psychology have not yet been made useful for entrepreneurship research. We think particularly about feedback processing which has been shown to be influenced by success (e.g. more upward comparison—for example, with a stronger competitor—after one has had success. A downward comparison is preferred after a failure: Wills, 1981). Thus, feedback processing is related to keeping up one's self-esteem—again a topic not much studied in entrepreneurship literature.

Another fascinating area is where psychological approaches make small-scale entrepreneurs able to deal with banks and other capital providers effectively.

One fascinating topic is the issue of making psychological entrepreneurship research useful for developing countries. It has been shown that micro-business contributes more to employment growth in developing countries than larger companies do (Mead & Liedholm, 1998). Thus, the issues surrounding entrepreneurship are more important in developing countries than in the West. Issues such as the ones discussed in the Giessen-Amsterdam model have been researched recently involving micro-business. Strategies, goal-setting, self-efficacy towards solving problems and personal initiative

have been shown to be important factors related to success (Frese, 2000). The practical usefulness of this research is particularly high if resources are scarce because both selection and training have to be applied with more care than in the affluent countries.

CONCLUSION

We hope that we have shown that psychological approaches to entrepreneurship are fascinating both for entrepreneurship as well as for work and organizational psychology. Entrepreneurship can profit from this interface between business and psychology because psychological variables are clearly and often surprisingly consistently related to entrepreneurial entry and success. Moreover, psychological variables (most notably action-related concepts) function as necessary mediators in the process that leads to success (e.g. strategies).

For work and organizational psychology, entrepreneurship is interesting because it combines the following features. First, the level of analysis question becomes even more interesting because it relates to the dynamics of enterprise growth; in the very beginning, a small-scale enterprise is best described by looking at the owner. However, in somewhat more mature enterprises, the level of analysis has to change because more delegation, management and implementation are necessary. Moreover, innovation and innovation implementation need to be described on different levels of analysis. In short, this issue relates to both methodology and theory more strongly in this area than in large-scale organizations. Second, some interesting organizational hypotheses can better be studied with small-scale entrepreneurs than with larger organizations. A good example is the study of contingency theories. The description of large organizations is always fraught with a high degree of error because different subparts of the organizations may differ highly from each other. In contrast, small-scale enterprises are more coherent and, therefore, contingency models can be tested better. Third, even large organizations attempt to mimic small enterprises (e.g. Avery Brown and Boverly) and stress intrapreneurship, innovation, and personal initiative. Thus, the study of small-scale entrepreneurs is a field that allows for a high degree of transfer of knowledge to larger organizations and that makes it necessary to test certain models before they are applied in a larger organizational context. There is no doubt that future jobs will focus on innovation and personal initiative more strongly (Frese & Fay, 2000). Again, these issues may be more easily (and theoretically more fruitfully) studied with small-scale entrepreneurs. Fourth, there is no area in which the interface between business and psychology becomes more obvious than in small-scale entrepreneurship; interdisciplinary cross-fertilization can and does take place in this area.

What have we found? There are clear, albeit often small, relationships between need for achievement, locus of control and the emergence of entrepreneurship (start up). Additionally, these variables are also related to success. Factors related to success are need for achievement, locus of control, low risk-taking, human capital, planning and strategies, innovation, entrepreneurial orientation, and tough environmental conditions. All of these correlations are small, but significant. The small correlations together with the large variance between the different studies suggest that moderators should be included into future entrepreneurial success models. Environmental conditions proved to be such moderators (e.g. hostility and dynamism). Other potential moderators are life-cycle stages, typologies (such as the one by Miles & Snow), growth vs. lifestyle goals, and culture. Another factor that allows a higher degree of prediction is to take variables into consideration that are directly related to the tasks that have to be done by the entrepreneurs and to use them as mediators. This also supports a process view of entrepreneurship. Finally, more than one predictor has to be incorporated into models and studies of entrepreneurship.

A number of recommendations follow for the future research:

1. The use of more sophisticated approaches in personality as well as task-domain analysis, moderators, mediators, specific personality factors, emphasizing processes (e.g. interactions with environment and changes of the environment), weak and strong situations.
2. Human capital studies have typically used proxy measures: thus, it is not really skills that have been studied but rather experience (even tough expertise research has shown that it is not the length of experience but rather the depth of experience that has any influence on expertise: Sonnentag, 1996). There is no specific knowledge test for entrepreneurs—often only educational rank is used as a variable. Intelligence is not usually controlled, so we do not know whether a personality variable (namely cognitive ability) is really the third variable producing the correlation between educational level and success. Therefore, it is not surprising that the relationships between human capital and success are by and large very small.
3. Researchers often do not ask whether entrepreneurs have subsistence, lifestyle, or growth goals. It is simply assumed that entrepreneurs have to have growth goals. Most owners do not and actually have clearly decided against growing too large. Still, their business provides stable employment and often interesting work to their employees. The bias for growth in entrepreneurship research is intellectually and empirically out of touch with reality for most entrepreneurs.
4. Strategies are not usually distinguished in their components and much of strategy research does not clearly differentiate goals from strategies (e.g. Porter, 1980). Moreover, many strategies have not been studied,

for example human resource development, which happens to be a rather effective strategy for larger companies (Youndt et al., 1996); we do not yet know enough about its usefulness for smaller companies even though first evidence also proves it to be positive (Goebel & Frese, 1999).

5. While there have been several approaches to develop a taxonomy of the entrepreneurial environment, they are still underdeveloped. While munificence, dynamism and complexity are certainly important variables, other issues are lacking, for example, network requirements, cultural requirements, support systems, government contacts in certain industries and countries, degree of corruption.
6. Typologies of entrepreneurs have been suggested but have not really been developed as yet. Empirical support is usually marginal (an exception being Miles and Snow's typology). In principle, it makes sense to look empirically at clusters of entrepreneurial characteristics and to develop an empirically supported taxonomy.
7. We have not discussed the measurement of success in this review because much of it is outside the realm of psychology (Schenk, 1998). Obviously, it is important to measure several different aspects of success, such as meeting goals, economic success, lifestyle success (e.g., prestige, satisfying work, contributing to a cause), growth, and others. Studies that look at only one dependent variable are by necessity restrictive and cannot really give a full picture of the processes involved. Moreover, the indicators are not always necessarily good indicators of success: for example, a large profit margin is a sign of bad planning and bad taxation consulting in most Western European countries.

Much more and much better research needs to be done in this area. Comparing the research on entrepreneurship with other areas of work and organizational psychology (e.g. leadership, selection, or stress research), one cannot but argue that the methodological quality of entrepreneurship research is still relatively weak. There are very few longitudinal studies, the analysis is often not up to date (e.g., often no or inadequate control variables are included), often reliabilities of scales (or interrater reliabilities) are not reported. Methodological misinterpretations (e.g., non-significant findings based on very few subjects are interpreted to null findings) are common. Conceptually, modern psychological reasoning is not incorporated (e.g. in much of the personality literature and also its critique). In short, much of what Low and McMillan (1988) have criticized in entrepreneurship literature in general is also true for its psychological approaches: the lack of a clear discussion of the purpose of research, the weak theoretical perspective, the underdeveloped focus on process, the simple assumptions about the correct level of analysis, the lack of taking the time-frame of developments explicitly into consideration, the lack of use of multiple methods and the little use of methodology that can test

causal hypotheses (e.g., modern regression or LISREL analyses). We were surprised by the fact that many articles do not report the statistics necessary to include them into meta-analysis (e.g., intercorrelation matrixes, Ms and SDs, *t*- or *F*-statistics, and reliabilities are not reported). Editorial policies are clearly not yet as sophisticated as they are in the mainstream work and organizational psychology journals.

We have reported a number of different models in this review; they are often presented as being contradictory. For example, some people have pitted personality approaches against human capital approaches. As Figure 3.1 shows, we assume that they coexist and can influence each other (e.g. IQ has an influence on the development of skills and knowledge). Even ecological approaches may coexist with a personality theory (e.g., Aldrich & Wiedenmayer, 1993) even though these two approaches sound rather contradictory. But given the importance of personality-situation interactions, it makes sense that these approaches should be combined. Moreover, hypotheses on the interaction of environmental conditions and strategies have worked out well and increased the explained variance considerably. An integration of various approaches to make real headway towards understanding a societally important phenomenon—entrepreneurship—is called for and produces challenging research.

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