

Entrepreneurial competence in agriculture

Characterization, identification,
development and the role of the
work environment

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Thesis

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Judging competence always involves inference (Paul Hager)

Abstract

In the last few decades, primary agricultural production in the Netherlands has been significantly influenced by firm expansion, innovation and diversification. These developments suggest that, increasingly, farmers and growers require entrepreneurial competence to continuously recognize and pursue new business opportunities. Though entrepreneurial competence is seen as a potentially promising concept, current research efforts i) have paid little attention to firms already in existence (like in agriculture), ii) provide few methodological starting points for studying entrepreneurial competence on the individual level, iii) and have paid little attention to social and task-related influences on entrepreneurial competence development. The objective of this thesis is to analyse how entrepreneurial competence can be characterized and identified, how it develops and how it can be fostered in small agricultural firms. In order to do so, entrepreneurial competence was studied using a comprehensive approach to competence, which implies that a multi-method methodology was adopted. Quantitative and qualitative methods were used in four empirical studies which included a total of 500 participants.

A first characterization was made by researching self-awareness and beliefs about improvability of general, but context-appropriate, descriptions of entrepreneurial competencies. The results show an almost consistent underestimation of entrepreneurial competencies and reveal that entrepreneurial competencies are seen as subject to at least some development. Conceptions of entrepreneurial competencies are not uniform within workplaces: elements of what is developed and can be developed further are partly idiosyncratic. Secondly, entrepreneurial competence was identified in more detail based on item-level descriptions which empirically define a competence domain. It was revealed that three domains constitute the heart of entrepreneurial competence, namely analysing, pursuing and networking. Thirdly, results obtained through comparing high- and low-performing firms, focusing on the task itself and using concrete work activities as descriptors for competence, suggest that the relationship between entrepreneurial performance and competence is not only influenced by business goals but also by the owner-managers' awareness. It is proposed that entrepreneurial performance is correlated with the development of competence associated with the beginning of the entrepreneurial process. Furthermore, the results suggest interdependence between existing competence and competence development within competence domains (horizontal development), and between competence domains (vertical development). Finally, four factors in the small-business work environment were identified as being crucial in the entrepreneurial learning process. In order of importance, these were: support and guidance, external interaction, internal communication and task characteristics, though differences in type of business opportunities represent slightly different dynamics. The results suggest a two-layered interaction between learner and work environment. Entrepreneurial learning of the owner-manager is influenced by the work environment, which is in turn shaped/defined by the owner-manager.

The results of this thesis provide professionals active in sector development and (vocational) education with clear steppingstones for developing competence-based curricula and learning-oriented assessments, as well as general ideas for developing learning environments that better reflect small-business dynamics.

Contents

Chapter 1	11
General introduction	
Abstract	12
Introduction	12
Why agriculture?	13
The 'entrepreneurial' part in entrepreneurial competence	16
The 'competence' part in entrepreneurial competence	18
Entrepreneurial competence development	23
Problem statements	25
Research objectives and the underlying research questions	28
Structure of the book	31
Chapter 2	33
Self-awareness and beliefs about improvability of entrepreneurial competence	
Abstract	34
Introduction	34
Self-awareness of entrepreneurial competence	36
Beliefs about improvability of entrepreneurial competence	37
Methods	39
Results	41
Discussion and conclusions	46
Chapter 3	51
Analysing, pursuing and networking: towards a validated three-factor framework for entrepreneurial competence	
Abstract	52
Introduction	52
The boundaries of entrepreneurial competence	53
Elaboration of an existing categorization	55
Methods	58
Results	61
Discussion and conclusions	66

Chapter 4	71
Searching for entrepreneurs among small business owner-managers in agriculture	
Abstract	72
Introduction	72
Theoretical framework	73
Methods	77
Results	80
Discussion and conclusions	86
Chapter 5	91
The influence of the work environment on entrepreneurial learning of small business owner-managers	
Abstract	92
Introduction	92
Entrepreneurial learning	93
Environmental factors influencing entrepreneurial learning	94
Methods	96
Results	99
Discussion and conclusions	103
Chapter 6	107
General discussion	
Abstract	108
Introduction	108
Main findings	108
Research findings in a broader perspective	112
Methodological issues	116
Generalizability and directions for future research	121
Practical implications	123
Final word	126
References	127
Summary	145
Samenvatting (Summary in Dutch)	151
Acknowledgements (Dankwoord)	157
About the author	161

General introduction¹

¹ Parts of this chapter are based on: Lans, T., Wesselink, R., Biemans, H., & Mulder, M. (2004). Work-related lifelong learning for entrepreneurs in the agri-food sector. *International Journal of Training and Development*, 8(1), 73-89.



Abstract

Entrepreneurial competence in agriculture refers to the exploration of new pathways to growth, innovation and diversification and the ability of owner-managers to identify and pursue such opportunities. The main objective of this thesis is to analyse how entrepreneurial competence can be characterized and identified, how it develops and how it can be fostered in small agricultural firms. This chapter presents an overarching introduction to this research objective. It does so by describing the specific characteristics of the agricultural sector and elaborating the core concepts of the thesis in more detail. Accordingly, three contested research areas – the problem statements – relating to the research objective are presented. These statements explain that, although entrepreneurial competence is seen as a potentially attractive concept, current research efforts i) stop either just before or just after firms emerge, ii) provide few methodological starting points for studying entrepreneurial competence, and iii) pay little attention to social and task-related influences on entrepreneurial competence development. The chapter finishes with the further specification of the research objectives and underlying research questions guiding this thesis.

Introduction

With a 9.4 percent share of the national gross added value and accounting for 665,000 labour years, the agricultural sector has an important position in the economy of the Netherlands (Ministry of Agriculture, Nature and Food Quality, 2008). After the USA and before France, the Netherlands was the second-largest exporter of agricultural products in 2006. In the last decades, agricultural primary production in the Netherlands has been significantly influenced by firm intensification, firm expansion, productivity increases and function diversification. This trend is visible in the decreasing number of firms and the increasing number of firms that are growing, innovating and diversifying (Backus et al., 2009; Jongeneel et al., 2008; Van Galen & Ge, 2009). Current exploration of new pathways to growth, innovation or diversification puts a strong emphasis on competence development (Batterink et al., 2006; Mulder, 2001). This suggests that, increasingly, farmers and growers require entrepreneurial competence to continuously recognize and pursue new business opportunities (Nuthall, 2006; Olsson, 1988; Pannekoek et al., 2005; Rudmann, 2008).

It has been asserted in the entrepreneurship literature that entrepreneurial competence is not just a matter of predisposition, but is also dependent on learning and experience (Baron & Ensley, 2006; Detienne & Chandler, 2004). It is therefore relevant to appreciate the complex ways in which farmers and growers learn to adapt their roles and develop entrepreneurial competence in order to innovate, grow or diversify their business. To date, it is not clear from the literature what is being learned in this process, and what fosters the learning process of becoming (more) competent in this role. The work that has been done focuses mainly on emerging rather than existing firms, and has been conducted in industries other than agriculture (Cope, 2005; Rae, 2007). Therefore, the main objective of this thesis is:

To analyse how entrepreneurial competence can be characterized and identified, how it develops and how it can be fostered in small agricultural firms.

Why agriculture?

The scientific literature increasingly acknowledges the rich setting agriculture provides for studying entrepreneurial competence (Pyysiäinen et al., 2006): recent studies include the UK (Carter, 2001; McElwee, 2008), the USA (Hinrichs et al., 2004), the Nordic countries (Alsos & Carter, 2006; Grande et al., 2007; Levander, 1998), Southern Europe (Skuras et al., 2005), Australia, New-Zealand (Nuthall, 2006; Pritchard et al., 2007) and the Netherlands (Bergevoet, 2005; De Lauwere, 2005). Several arguments underlie the scientific interest in agriculture as a sector in which to study the ways that entrepreneurial competence can be characterized and identified, how it develops and how it can be fostered.

Firstly, what makes Dutch agriculture in particular an attractive setting for studying these kinds of processes is the fact that the almost 75,000 small firms operate under highly comparable conditions with respect to climate, laws and regulations, financial institutions, market, and availability of labour and technology. Unlike general small business studies that often cover many industries and thus differ enormously in terms of regulation, institutions, guidance and support, the agricultural sector provides at least some control for that.

Secondly, Markman (2007) argues that, if one studies the enactment and development of entrepreneurial competence, it is helpful to make a distinction between strong and weak situations – a distinction from social psychology. Strong and weak situations refer to the extent to which the work setting hinders or stimulates certain behaviour. Strong situations are characterized by a high degree of structure, unambiguous problem situations and low levels of uncertainty, all of which provide clear cues for the enactment of fixed behavioural patterns. Weak situations, by contrast, are relatively unstructured, ambiguous and characterized by higher levels of newness and uncertainty. Weak situations afford individual differences and thus provide a rich setting for the enactment of entrepreneurial competence (Markman, 2007).

The notion of strong and weak situations is relevant if we look at the broader work setting of five decades of agriculture in the Netherlands and Europe. After the Second World War, food security was one of the most important factors in agriculture. By supplying products of standardized quality at low cost, Dutch farmers were able to respond to this increasing demand more than adequately. European agricultural policies provided a stable internal market and guaranteed prices. The knowledge infrastructure provided a strong knowledge network, diffusing new agricultural technologies very effectively. Increase in farm sizes and decreasing labour intensity were a result of this successful knowledge system. To give an indication: the acreage of flower production in greenhouses increased 14-fold between 1950 and 1985, whereas the average number of people working in Dutch agriculture decreased by 70 percent in that period (Van den Ban & Bauwens, 1988). In the 1990s the situation changed as economic liberalization reduced protection of agricultural markets. Due to an increase in diversity of small firms, the linear knowledge transfer model was gradually replaced

by an unstable, interactive innovation arena (Gielen et al., 2003). Simultaneously, society has been changing and developing at an increasing rate, and agricultural companies must adapt to the vagaries of the market and changing consumer habits, enhanced environmental regulations, new requirements for product quality, chain management, food safety, sustainability and so on. It is a change that has opened the door for experimentation with alternative farming and growing methods (e.g. organic farming, landscape conservation, rural tourism, care farming) and innovation in business processes and distribution (e.g. introducing tracking and tracing systems, value-added logistics, certification). The described developments mark a shift, in Markman's (2007) terms, from a strong, highly regulated situation towards a weak situation in which entrepreneurial competence is needed as a way to confront these new challenges (Hulsink, 2005).

Thirdly, since many firms in agriculture are inherited from father to son, entrepreneurial competence has always been subject to 'limited' selection. Cooper and Dunkelberg (1986) empirically support the argument that paths to ownership influence the goals, attitudes and perceptions of owner-managers. In particular, agricultural studies consistently show that the vast majority of EU farmers retain a productivist² mindset (Burton & Wilson, 2006; Gorton et al., 2008), despite the macro-level emphasis on non-productivist and multifunctional modes of farming. These self-concepts seem to be further imprinted by the tendency of farmers to engage in networks which are skewed to traditional technical and agronomic advice (Diederer et al., 2000; Phillipson et al., 2004). Thus, complementary to the argument that, historically, the agricultural working setting did not necessarily educe entrepreneurial behaviour, it can be reasoned that farms and farmers themselves also limited their selection and exposure to those who had similar orientations to agriculture. Over time, when environments change, this can lead to situations in which people are unable to anticipate competition, new markets, new demands, new rules and regulations (Schneider, 1987). Therefore, typical higher-order learning processes, such as learning to recognize the importance of new developments, discovering one's personal strengths and weaknesses in this respect and finding ways to develop oneself further, which are claimed to be characteristic of entrepreneurial learning (e.g. Cope, 2005), are very relevant in this setting.

Fourthly, from research it has been repeatedly reported that small firms participate less often in formal education and training than larger firms, particularly if these are small, family firms (Kotey & Folker, 2007) and the management development trajectories of owner-managers themselves are at stake (Storey, 2004). This is not different in the Dutch agricultural sector. From Figure 1.1 it can be seen that horticulture, an

² The productivist notion of agriculture concurs with maximum food/flowers production and the role of the countryside for realizing this. This contrasts with the notions of post-productivism and multifunctionality or diversification, which stress a consumer orientation, sustainability and portfolio entrepreneurship, although one should be careful about viewing these notions as mutually exclusive, overarching or sequential tendencies (Burton & Wilson, 2006; Vesala & Vesala, in press).

important agricultural sector in the Netherlands, scores even lower on participation level in formal education and training than non-agricultural small, medium and large counterparts.

What is more, the percentage of owner-managers in agriculture that have an intermediate or higher education degree is consistently lower than the percentage of owner-managers of non-agricultural small- and medium-sized enterprises with such degrees (Figure 1.2).

The fact that participation levels in formal education and training are lower in small firms than in large firms does not mean that learning is not taking place in these small firms. On the contrary, workplaces are often reported to be potentially rich environments for learning and development (Marsick, 1987). This type of learning does not lead to diplomas or certificates and is hence difficult to include in general statistical data. This makes small agricultural firms an interesting venue for adopting a work-related learning perspective for studying entrepreneurial learning as suggested by Macpherson and Holt (2007).

Finally, due to their limited size and low structural complexity, innovation, business strategies and business performance in small firms are, to a large extent, dependent on the decision-making behaviour of their owner-managers. This direct link between the individual and the firm makes it easier to investigate relationships between individual entrepreneurial endeavours and all sorts of firm success measures. With the added advantage of the financial aspect of agricultural performance being well monitored in the Netherlands, it is clear that the sector provides many opportunities to further explore relationships between the development of individual entrepreneurial

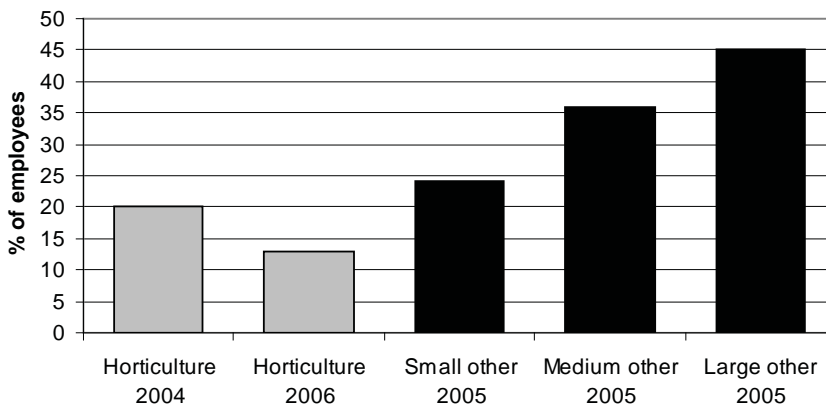


Figure 1.1 Percentage of employees with a permanent contract following education or training in horticulture in 2004, 2006, and in small (10-100 employees), medium (100-500) and large firms (>500) in other, non-agricultural sectors in 2005. *Source:* CBS (2005) and Kans et al. (2007).

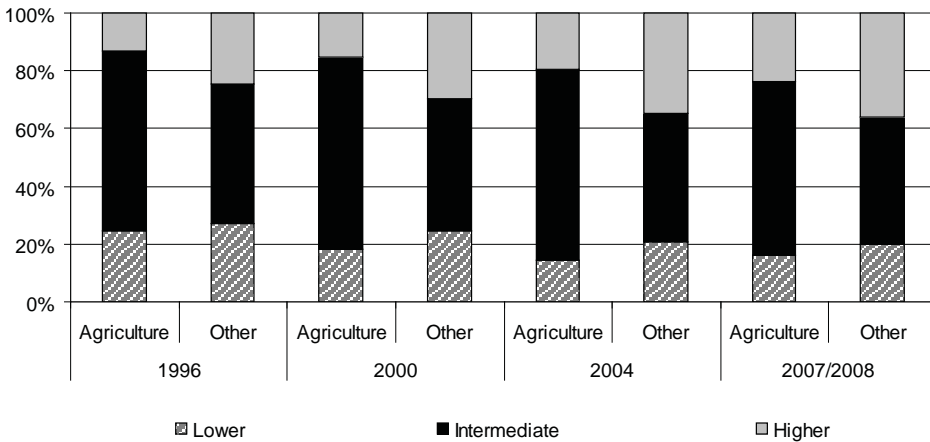


Figure 1.2 Percentage of new owner-managers (those who inherited their parents' companies) in agriculture and of other non-agricultural owner-managers of small- and medium- sized companies that have completed lower, intermediate or higher vocational education in the Netherlands for the years 1996, 2000, 2004 and 2007/2008.

Note: In the last two columns, the data for agriculture are for 2008, whereas the non-agricultural data are for 2007.

Source: CBS (2008) and EIM (2007).

competence and firm performance, and other relevant success variables. This is an area of research which is still in its infancy and which deserves more attention, not only in small firms in agriculture but also in light of the search for more common ground between learning and performance paradigms in adult education and the human resource development (HRD) literature (Holton, 2002).

The 'entrepreneurial' part in entrepreneurial competence

The importance of entrepreneurial competence in relation to developments in agriculture has already been briefly introduced in the previous section. However, what exactly is meant by entrepreneurial? There is no fixed definition of entrepreneurship; a wide diversity of definitions can be found. What makes it complicated is that the term entrepreneur – those who are likely to show entrepreneurial behaviour – is used as a substitute for business owner, starter, someone who is self-employed, sole-trader or farmer, thereby confusing status (a position in society) with role (behaviour in a particular position) (McClelland, 1967). Starters, sole-traders, farmers and small business owners (all labelled as entrepreneurs in daily language) do not necessarily show entrepreneurial behaviour (McClelland, 1967). Therefore, from here on, the word owner-manager will be used instead of the seemingly equivalent terms 'entrepreneur', 'farmer' or 'grower', since the term owner-manager is the most neutral and accurate description of the status of the subjects in this thesis.

From the scholarly field of entrepreneurship, many attempts have been made to establish some clarity in this semantic confusion – a discussion which is fed on the one hand by disciplinary inheritance (e.g. economics, sociology, psychology) and on the other hand by pragmatism (e.g. data collection). Over the years there has been a growing consensus that a fundamental and distinctive feature of entrepreneurship is the identification and pursuit of business opportunities (Ardichvili et al., 2003; Gaglio & Katz, 2001; Shane, 2003; Shane & Venkataraman, 2000). The identification and pursuit of opportunities, echoing a process perspective on entrepreneurship, opens up the door for studying entrepreneurship in relation to learning and development issues and does not necessarily limit the study on entrepreneurship to specific situations such as new venture creation. In its broadest sense, opportunity identification and pursuit is something that can be studied within existing smaller or larger companies (e.g. intrapreneurship, also referred to as corporate entrepreneurship), among nascent entrepreneurs (e.g. students following an entrepreneurship programme) or even in samples of ‘ordinary’ people (Corbett, 2007).

The opportunity concept itself, popularized by Shane and Venkataraman’s (2000) influential article written to give entrepreneurship its own intellectual identity, plays a central role in this definition. What post-hoc may be called a real business opportunity is in its rudimentary form often an ill-defined market need, a technology or invention for which no market has yet been defined, or an idea for a product or service (Ardichvili et al., 2003). Depending on the underlying theoretical assumptions of the opportunity concept, different aspects of the opportunity process are placed at its core. Of central importance here is the question of whether opportunities are considered as ‘objective’, waiting to be discovered in a more or less ready-made form, or ‘constructed’ more or less actively by the individual through noticing or gradually bridging the gap between an actual and a desired situation. This dichotomy of two opposing ontological positions on opportunities is reflected in subtle use of language such as passive versus active (Detienne & Chandler, 2004), recognized versus formed (Chiasson & Sanders, 2005), discovered versus enacted (Dutta & Crossan, 2005), discovered versus developed (Dimov, 2007a), or objective versus subjective (Companys & McMullen, 2007).

Proponents of the objective viewpoint claim that opportunity identification is a matter of discovery either by surprise or as a result of successful search. In essence, opportunities are there for everyone. Entrepreneurs are those who exploit opportunities by taking advantage of technological change or innovation in the economy (Dutta & Crossan, 2005). The fact that not everyone exploits these entrepreneurial opportunities is due to individual differences (Ardichvili et al., 2003; Chiasson & Saunders, 2005).

At the other side of the opportunity spectrum are the proponents of the constructed viewpoint, who argue that opportunities are more or less actively constructed by individuals. Those who attribute a passive role to the individual consider the identification of opportunities as a matter of entrepreneurial alertness which reflects the idiosyncratic individual knowledge base of the entrepreneur, rather than an intrinsic

generic personal trait (Dutta & Crossan, 2005; Gaglio & Katz, 2001).

Those who take a more active, constructivist position on opportunities go beyond the single-insight notion of opportunity identification and ascribe an important role to perception, interpretation, understanding and creativity in the opportunity identification process (Detienne & Chandler, 2004; Dutta & Crossan, 2005; Sanz-Velasco, 2006). What is more, activities such as interpretation, understanding and creativity are often not limited to the entrepreneur him- or herself. The work environment has an important influence on the meaning-making process (Dimov, 2007a). Therefore, recent authors advocate going beyond individual entrepreneur conceptualizations of opportunity identification and recognizing the importance of the work environment which affects the opportunity development process (Dimov, 2007a; Drakopoulou Dodd & Anderson, 2007). This puts a strong emphasis on acting and shaping ideas in dialogue with, for instance, employees, competitors, network and chain partners, and thus does not limit the term opportunity to the individual.

What is interesting in very recent work on opportunity identification and pursuit is that some authors regard these different viewpoints as complementary, rather than as mutually exclusive. Authors such as Chiasson and Saunders (2005), Dutta and Crossan (2005), Sanz-Velasco (2006) and Companys and McMullen (2007) emphasize that the opportunity identification process and the opportunity pursuit process are in fact one complex multidimensional process. More concretely: investigating those who engage in entrepreneurial behaviour requires an analysis not only of individual skill, but also of the activities individuals engage in as well as the people with whom they engage (Dimov, 2007a). In line with this recent way of thinking about opportunities, 'entrepreneurial' in this thesis refers to *the process of identification and pursuit of entrepreneurial opportunities, more specifically the iterative process of searching, shaping and evaluating initial ideas in dialogue with the social environment (including employees, competitors, networks and chain partners)*.

The 'competence' part in entrepreneurial competence

The second part of the term entrepreneurial competence is competence. Although the concept of competence appears to be quite old – Mulder et al. (in press) traced it back even to ancient Persian, Greek and Roman times – discussions about its definition, identification, use and development are still ongoing (c.f. Hager, 2004; Stoof et al., 2002; Westera, 2001). These discussions are sometimes labelled as counterproductive or fuzzy, but they sharpen current thinking about competence in relation to learning and professional development. Education-driven discussions, explicitly about the concept of competence in the field of entrepreneurship, are still in their infancy (building upon a few papers such as Gibb, 2000; and Markman, 2007). Yet, many of the points raised in general educational journals are very relevant for this field, especially if it concerns questions related to the content, assessment and development of competence (Hodkinson, 1995) – themes that constitute the heart of this book.

Accordingly, before starting a detailed discussion about the available number of definitions of competence (more than 40 definitions have been documented according to Mulder, 2001), it is important to take a step back and first try to define the underlying learning theories that have shaped thinking about human³ competence in a particular research tradition. Clarifying its theoretical underpinnings is not only important for defining competence in itself (for instance as in entrepreneurial competence), but also helps to further specify the relation between competence and its development; learning theories and ideas about professional competence can be found in fundamentally different schools on human thought and action, for instance more behaviourist, cognitive or social constructivist. A dearth of elucidation of underlying epistemologies on knowledge and learning that shape the understanding of competence is, according to Hager (2004), one of the reasons why competence-based research has been received so critically.

In the following sections, the different theories that underpin human competence are described. This description is not meant as a complete history of the concept; that would be a PhD thesis in itself. The description is based on its relevance for the professional development of entrepreneurship.

Professional competence as fragmented behaviour

An influential stream of research that has shaped current thinking about competence can be traced back to what is called the functional-behaviourist approach to competence (Neumann, 1979). This tradition of competence has its origin in the beginning of the twentieth century, a period heavily influenced by World War I and the industrial revolution. The need for many trained military men, as well as workers for industry (both military and civil) demanded highly effective, transparent training programmes. Frederick Taylor's theory of scientific management based on time and motion studies played an important role in this period. Scientific management can be seen as a set of principles that focus on efficacy and standardization of processes – for instance by finding the fastest way to assemble cars. Subsequently, these work tasks are simplified as much as possible, described and, when necessary, taught to others.

This idea of job analysis plays a central role in the functional-behaviourist approach to competence. A job analysis means in this tradition a meticulous investigation of an occupation, in which the analysis breaks down each trade into a number of jobs. The jobs are further broken down into a series of activities in the job, which in turn are broken down into duties, tasks and sub-tasks where appropriate. An illustrative example of an application of the functional-behaviourist approach to competence can be found in the professional development programmes of teachers in the USA in the

³ The term 'human' is used here only to emphasize the difference between what we are discussing and firm competence (e.g. absorptive capacity, dynamic capability, core competence). For instance, competence has been linked to theories that explain the importance of the endogenous growth of firms, or explain the competitive advantage of firms in certain industries (Knudson, 1996).

nineteen seventies and eighties. The American teacher-training programme was based on a thorough job analysis (consisting in the first instance of more than two million activities!), which later became known as the 1001 activities of American teachers (Neumann, 1979).

Although Taylor's concept proved to be very useful for selection purposes (e.g. task descriptions), the impact it had on the training of employees was perhaps even bigger (Neumann, 1979). According to Neumann (1979), Taylor himself never explicitly worked on the relationship between the dissection of jobs and functions and an instruction theory; it was others who suggested that the 'scientific manner' was not only the most efficient way to carry out a task, but also the most efficient way to train someone in it.

Because of the fragmented descriptions of professional competence and its clear relation with scientific management, competence as a concept became very much associated with behaviourism, mastery learning and modular teaching in the Commonwealth countries (Mulder, 2004). A fundamental critique of this approach was that a list of atomized work descriptions does not indicate whether the worker is indeed able to accomplish the job efficiently in practice. Furthermore, these models have been criticized for their mechanistic view on work, ignoring workers' autonomy and identity, undervaluing the role of tacit knowledge and generating relatively conservative models of competence (Eraut, 1994; Cheetham & Chivers, 1996).

Professional competence as (the development of) worker-oriented capabilities

Unlike the fragmented functional-behaviourist approach, the worker-oriented view on competence considers competence in terms of attributes of the individual necessary to accomplish a certain role or task. So whereas the focus in the functional-behaviourist approach was on a detailed analysis of what work looks like, the worker-oriented approach looks at the individual who should accomplish a specific role, function or task. This stream has different traditions, depending on the role of knowledge as an essential element in developing these capabilities (Sandberg & Pinnington, 2009). Two influential streams in this fashion are stage-model theories on professional competence and the KSA⁴ (knowledge, skill, ability) approaches to competence.

In stage-models of professional development, competence is seen as the movement from novice to expert (Dreyfus & Dreyfus, 1986)⁵. One of the most straightforward theories in this approach comes from cognitive psychology, in which professional development is described as an increase in (situation-) specific knowledge. From famous studies on

⁴ In education and training literature, KSA normally refers to knowledge, skills and attitudes.

⁵ To make it even more confusing, Dreyfus and Dreyfus (1986) refer to 'competent' as a distinct level between novice and expert (i.e. novice, advanced beginner, competent, proficient, expert). Competence in this fashion thus refers to minimal, sufficient requirement (e.g. in law, state of being legally qualified), in contrast to other definitions, including the one in this thesis, where it would be more related to what Dreyfus and Dreyfus (1986) call expertise.

expertise in chess, it is known that chess masters showed considerable breadth and depth of possible moves and countermoves; however, so did lesser-ranked chess players (De Groot, 1965; Bransford et al., 2000). Unlike novices, experts had highly developed organized structures for a particular domain ('chunks'), therefore developing sensitivity to patterns of meaningful information which permitted successful non-routine problem solving. Besides in chess, similar results have been found in other domains such as mathematics, computer programming, radiology, etc. (see Billett, 2001 for a discussion). Two basic assumptions underlie the development from novice to eventually expert level: firstly, the idea of moving from the use of abstract principles towards using concrete experiences as a frame of reference in situations; secondly, change of skilled performance in what Benner (1982) describes as change in perception and understanding of demanding situations. Rather than viewing challenging situations in bits and pieces that are all equally important, situations are viewed as a whole in which only certain aspects are prioritized and regarded as important. In the transition from novice to expert, experts have learned to focus attention only on the key dimensions: those dimensions most relevant to the action they are performing.

In contrast to cognition-oriented theories on professional competence, KSA or generic approaches to competence broaden the conceptualization of competence by adding other elements to professional competence, such as skills, abilities and sometimes other personal characteristics related to effective work performance (e.g. motives, values, social roles, dependent on the exact view). Competencies are elicited by behavioural event interviews to identify those behaviours distinguishing average from best performers. One of the most quoted applications of this theory can be found in the work of Boyatzis, which is grounded in the work of personality psychologists such as McClelland, McLagan, and Spencer and Spencer (Rothwell & Lindholm, 1999). Competency is in this tradition *'an underlying characteristic of an employee (i.e. motive, trait, skill, aspect of one's self-image, social role or a body of knowledge) which results in effective and/or superior performance in a job'* (Boyatzis, 1982: 21).

One of the strengths of this model of competence is that much effort has been put into testing it on a large scale with a wide variety of practitioners, using a wide range of psychometric techniques to measure the reliability and validity of the constructs (e.g. Bartram, 2005). This quest to measure and define competence as objectively and universally as possible is also seen by some as a clear disadvantage, since it results in the creation of abstract, unrecognizable descriptions of competence which ignore the complexity of work and work contexts (Delamare-LeDeist & Winterton, 2005). What seems to be tricky here is that the model assumes a single type of good practitioner, independent of the context, which is not very likely (Eraut, 1994).

Professional competence as situated professionalism

The cognitive and generic perspectives on competence have clearly gained ground in researching professional development. Nevertheless, many authors warn that a conceptualization of competence in these two fashions still falls short of addressing the situated nature of professional practice (Billett, 1996; Brown et al., 1989; Lave & Wenger, 1991). This is problematic since people and their world(s) are inextricably related: workers and their work blend together in the execution of activities, with workers experiencing them and making sense of them (Sandberg, 2000). In the jargon, the cognitive and generic perspectives on competence embrace a so-called container view of practice (Dall’Alba & Sandberg, 2006). Theories that do not support this view take a socio-cultural conception of professional learning and development as their point of departure, addressing learning and expertise as activities of more centred participation, stressing the importance of the evolving bonds between the individual and others and the importance of viewing learning as an ongoing activity in a particular practice (Sfard, 1998).

For instance, Tyre and Von Hippel (1997) focused specifically on the physical setting of the workplace in disentangling the nature of adaptive learning around new technologies in organizations. On the basis of in-depth interviews with users and engineers of new machines, they showed the importance of the physical location for developing problem-solving activities. The physical location not only influenced the direct skills they could apply, but also revealed many clues about the machine and its problems, which were embedded in the specific setting – clues that could only be recognized by expert engineers on the spot (only in 2 of the 27 described cases were the experts able to grasp the nature of the problem without direct confrontation with the problem in its specific work environment).

One of the conclusions drawn from this research was that part of the engineer’s competence is the ability to use specific tools in specific settings: *‘the act of getting into coordination with the artefact constitutes expert performance’* (Tyre & Von Hippel, 1997: 78). To emphasize the difference in thinking about expertise and learning, this stream of theories on learning is accompanied with, again, different vocabularies to describe professional development, such as practice, discourse and knowing (Sfard, 1998).

At present, modern interpretations of competence, which have their basis in educational and HRD literature, have tried to deal with the critiques on the various approaches discussed above. Strategies to do so include the adoption of multi-method orientations to competence (Lievens et al., 2004; Shippmann et al., 2000) and, more fundamentally, investigating competence from an interpretive perspective (Sandberg, 2000) or studying it as professional identity, as a way of being (Sandberg & Pinnington, 2009). This diversity of new notions of competence can be seen as the continuous search for more comprehensive conceptualizations of competence in order to contrast them clearly with the disintegrative and reductionist models of competence described earlier. This thesis acknowledges the importance of using more comprehensive

approaches to competence and, in order to do so, follows current conceptualizations of competence which are gaining popularity in France, Germany, Austria and the Netherlands (Biemans et al., in press; Cheetham & Chivers, 1996; Delamare-Le Deist & Winterton, 2005). Comprehensive in this sense refers to integrated clusters of knowledge, skills and attitudes (referred to as competencies), conditional for accomplishing task performance, problem solving and functioning within a specific position and context (Mulder et al., in press). Competence in its most elementary form can be operationalized as a fit between existing ability and the demands of a certain task in a certain context (Brinckmann, 2007). Furthermore, on the basis of an inventory compiled by Van Merriënboer et al. (2002), Biemans et al. (2004) suggest that a comprehensive view on competence implies that competencies, the constituents of competence, are subject to change, subject to learning and development processes and that they are interrelated. In line with the previously explained view on opportunity identification and pursuit, entrepreneurial competence is thus defined as the ability to identify and pursue entrepreneurial opportunities within a specific position and context. Context is used here as a multi-layered construct (Johns, 2006). It includes both elements of what Johns (2006) refers to as the omnibus context as well as the discrete context. The omnibus context in this thesis refers to what has been discussed previously as the broader agricultural setting. The discrete context refers to the specific small-firm work environment which includes the task context and the social context (Johns, 2006).

Entrepreneurial competence development

As already explained, entrepreneurial refers to the identification and pursuit of business opportunities, whereas competence refers to comprehensive sets of knowledge, skills and attitudes (i.e. competencies) which enable the owner-manager to perform entrepreneurial tasks within a specific context. Then again, these definitions do not specify explicitly an underlying learning theory or model which can be used to describe and explain the *development* of entrepreneurial competence: the ongoing longer-term change which occurs through participation in many learning-related activities (Maurer, 2002).

In the absence of such a unifying theory, this thesis makes use of the previously elucidated views on entrepreneurship and competence complemented with existing work in the emerging field of entrepreneurial learning. A helpful model to cluster a set of potential important learning-related elements meaningfully is Biggs' (1993) general 3P learning model, an input-process-output learning model which uses three bins of learning-related factors, namely, presage, process and product factors. In our research framework, presage factors are seen as individual and work-environment factors, process factors as learning-related activities and product factors include outcomes. Some of the underlying elements constituting those factors are briefly elaborated below.

A well-known *individual* factor from educational sciences is prior knowledge. The basic assumption is that prior knowledge determines to a large extent how easily someone can learn new information (Simons, 1995). Indirectly, the importance of prior knowledge is supported by human capital research illustrating that prior experience is related to the growth of new firms (Columbo & Grilli, 2005). In the existing literature on entrepreneurial learning there is evidence that prior knowledge fosters entrepreneurial learning at least in two ways. Firstly, it influences creativity. The idiosyncratic nature of prior knowledge fosters the different ways new information is associated with existing knowledge, and this can result in more ideas (Detienne & Chandler, 2004) or *neue Kombinationen* (Schumpeter, 1934). Furthermore, prior knowledge also influences the type of opportunities entrepreneurs will identify and pursue (e.g. more or less novel, demand- or supply-driven) and thus the type of learning activities entrepreneurs will engage in (Dimov, 2007b; Sanz-Velasco, 2006; Shane, 2000). A second cluster of individual factors comprises motivational factors. Individual motivational factors play an important role in explaining learning-oriented behaviour in general (Wlodkowski, 1999). In particular, feelings of efficacy (i.e. confidence, self-belief) and individual goals have been associated with entrepreneurial intentions and entrepreneurial learning (Bird, 1995; Rae & Carswell, 2000; Zhao et al., 2006).

Secondly, it is assumed that the *work environment*⁶ will influence the entrepreneurial learning process, simply because it is the most important learning environment owner-managers engage in. For instance, in environments in which there is guidance and support, the scope of what will be learnt is broader (Billett, 2003). Research on work-environment factors that foster learning in general can roughly be divided in terms of the nature/organization of the tasks, and the cultural and social relations that characterize the work environment (Doornbos, 2006). The bulk of research which addresses the influence of work environments comes either from the organizational learning literature (including literature on the learning organization⁷), relating it to learning, or the corporate entrepreneurship literature (studying entrepreneurship in large companies, intrapreneurship), relating it to entrepreneurial behaviour. Studies in small firms are scarce, but those available suggest that the external environment of small businesses should also be included in studies on entrepreneurial learning (Van Gelderen et al., 2005).

The individual and work-environment factors will interact with and lead to a wide array of *learning-related activities* which will foster learning processes. Learning and working are difficult to separate in informal learning or work-related learning, since learning is often unstructured, unintentional and not always recognized as such, being

⁶ As explained, the word *environment* emphasizes the distinct work context the owner-manager engages in, including the task and social context (Johns, 2006).

⁷ Literature on the learning organization is often seen as the more practitioner-based, normative stream of literature on organizational learning (Shipton, 2006).

a concurrent process to working (Eraut, 2004). What seems to be clear in the current entrepreneurial learning literature is that learning-related activities associated with the ongoing entrepreneurial process are neither exclusively individual by nature, nor exclusively social, but include a combination of both (Dutta & Crossan, 2005; Cope, 2005; Dimov, 2007a). Study groups, business visits, learning from colleagues, self-analysis, engagement in networks of external relationships, immersion within the industry, observation, experimentation and reflection are all recorded as powerful learning-related activities in entrepreneurial small firms (Deakins & Freel, 1998; Hinrichs et al., 2003; Lans et al., 2004; Mulder et al., 2007; Rae, 2006; Van Gelderen et al., 2005). Furthermore, a distinction can be made between adaptive, more incremental, reproductive or exploitative learning and developmental and more innovative or explorative learning (Argyris & Schön, 1978; Ellström, 2001; Fenwick, 2003; Kuwada, 1998). Cope and Watts (2000) as well as Sanz-Velasco (2006) suggest that entrepreneurial learning is often more atypical and iterative in nature, thus emphasizing its developmental, dynamic character.

Finally, the further development and improvement of competence is embedded in daily practice which fine-tunes the execution of an activity or when new opportunities arise. Learning *outcomes* are not neatly defined factual knowledge or general skills but include the development of work-related competencies (Tynjälä, 2008). They can encompass competence development with different accents in different directions, such as cognitive (work-related knowledge and understanding), functional (role-related skills, know-how) or behaviour-orientated accents (know how to behave) (Delamare Le Deist & Winterton, 2005; Man et al., 2002). Some authors add the importance of meta-competencies – competencies which facilitate the development of other competencies (Deakins & Freel, 1998; Man & Lau, 2005). Outcomes of entrepreneurial endeavours can also be studied, post-hoc, at the firm level, such as new firms, strategic renewal, growth or innovation (Sharma & Chrisman, 1999). As the external environment of the firm is changing and/or the small firm is experiencing endogenous changes itself (e.g. firm inheritance), current learning and working processes may no longer fit, and a new or parallel process of new entrepreneurial learning may start again. Figure 1.3 schematically summarizes the above-mentioned factors in a conceptual framework of what in the literature is referred to as entrepreneurial learning.

Problem statements

Given the importance of entrepreneurial competence and entrepreneurial learning attributed to small-business success (Harrison & Leith, 2005), it is surprising that only few empirical studies investigate the above factors (or combinations thereof); learning is still an emerging area of interest in the small-business and entrepreneurship literature (Blackburn & Kovalainen, 2009). Therefore, this introduction not only provides a picture of what is known, but also addresses some of the limitations of current research. Those issues which directly involve the following chapters in this thesis are addressed below.

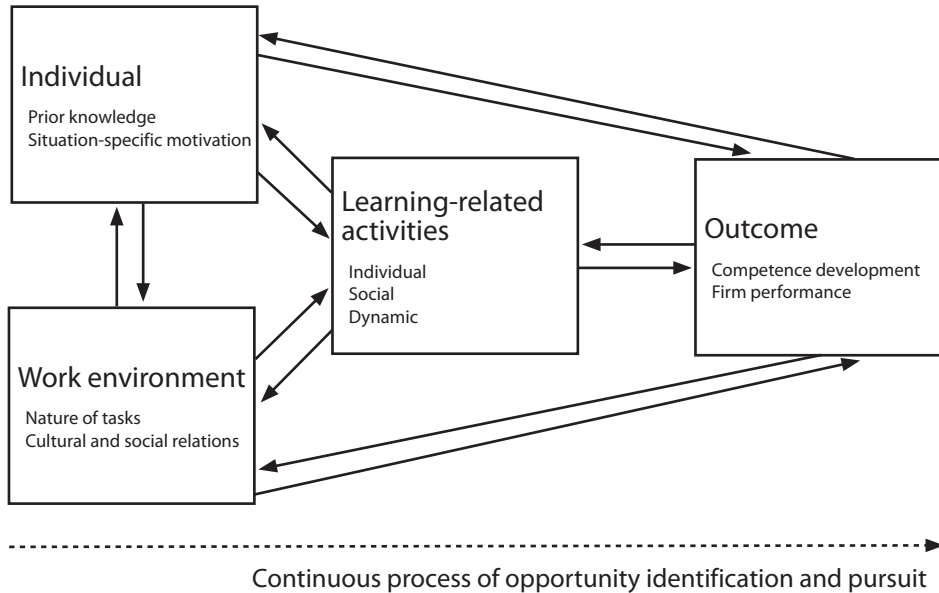


Figure 1.3 Conceptual framework of entrepreneurial learning.

The positioning problem

Traditionally, small-firm entrepreneurship research focuses on start-ups, in which the start-up process is seen as the entrepreneurial act. Analogous to biological lifecycles (egg, caterpillar, pupa, butterfly, death), stage-models have been developed consisting of three to five stages through which the firm moves until its death (c.f. Kazanjian, 1988). In different stages, firms face different challenges that guide the learning and development of the owner-manager. Whereas the start-up of the firm emphasizes entrepreneurial ability, the other phases are often claimed to educe different skill and ability domains (e.g. financial, human resources) (Sullivan, 2000).

In studies of entrepreneurial learning in existing small firms, such an operationalization of entrepreneurial activity is too narrow and even misleading. The entrepreneurial learning does not stop, say, five years after starting a firm. It will continue to develop depending on the initiatives employed by the owner-managers, as well as on the specific situational challenges the owner-managers face. The idea of a single lifecycle is therefore misleading (Hoy, 2006). For instance, by introducing new products, processes or technologies in the firm, a new cycle will be added. The enactment of new product or technology lifecycles will influence and contribute to entrepreneurial learning. Moreover, in the inheritance phase of family firms other individual lifecycles will probably result in additional entrepreneurial learning (Hoy, 2006): suppose, for example, the parents’ goals and activities are focused on health and financially secure retirement, whereas the eldest

child sees the need to introduce new products and wants to place the company at risk in the short term. Probably the parents' lifecycle in this example is aimed at maintaining the current status quo (adaptive, exploitative learning), whereas the successor's lifecycle will be aimed at seeking new opportunities (developmental, explorative, entrepreneurial learning). As Cope (2005: 376) clearly states: *'the learning process within entrepreneurship is essentially dynamic and appears to be continuous throughout the life of a firm, rather than being concentrated in the first few years'*.

The problem of competence

There is widespread consensus that human resources (among which competence) are an important factor influencing entrepreneurial activities, such as the set-up and growth of successful enterprises (Prahalad & Hamel, 1990). Studies which focus on the relation between entrepreneurial success and human resources in general have their roots in human capital theory (Becker, 1964), the theory of the growth of the firm (Penrose, 1959), the resource-based view of the firm (Wernerfelt, 1984) and the dynamic capability approach (Teece et al., 1997).

According to Brinckmann (2007) and Capaldo et al. (2002), these firm-level theories provide a basic understanding of how individual entrepreneurial competence relates to firm development. Nevertheless, a complementary conceptual step has to be taken first. Originally, resource-based approaches were adopted to explain the growth and performance of large and well-established firms (Salvato, 1999). For their application to small entrepreneurial firms, it is necessary to make a clear distinction between existing resources (availability, in stock), and the ability to actively exploit and recombine resources (Salvato, 1999). The first perspective has relatively little theoretical value in explaining small-firm development, since the objective stock of resources in small firms is always limited (Salvato, 1999). The second, however, is more applicable for entrepreneurial small firms. In particular, it can be stated that:

- distinctive capabilities⁸ of a firm are closely related to knowledge and skills of the owner-manager(s);
- capabilities are to a large extent the implicit products of learning and experience;
- there is a close relationship between the activity of owner-managers and the development of capabilities;
- the owner-manager plays an important role as a designer, manager and integrator of different capabilities;
- highly entrepreneurial firms are able to re-form the way capabilities are used simultaneously with a continuing development of existing capabilities.

⁸ Again to avoid confusion, 'capabilities' is used here to indicate that firm-level constructs are being referred to.

Although the statements above suggest important starting points for studying the relationships between capabilities and firm development, they provide little guidance for the study of human competence from an operational and methodological standpoint (Capaldo et al., 2002). Frameworks and studies of entrepreneurial competence indicating which variables to include in studies measuring entrepreneurial competence on the individual level are scarce, and there is a need for further validation as well as sophistication of the concept at the individual level.

The limits of individual learning

In the present body of entrepreneurial learning literature, the issue of the entrepreneur's learning has been theorized predominantly in models drawn from individual learning (for instance using models of experiential learning, building further on the work of Kolb, 1984). However, increasingly, scholars of entrepreneurial learning question the focus on the individual without consideration of the social (Dimov, 2007a). Indirect clues concerning the importance of social interactions in entrepreneurial learning come from the network literature (e.g. Arenius & De Clercq, 2005; Elfring & Hulsink, 2003) and theories about learning in innovative and strategic settings (Crossan et al., 1999; Du Chatenier, 2009; Paavola & Hakkarainen, 2005; Paavola et al., 2004). As recent studies suggest, individual learning is often socially mediated learning (Cope, 2005; Rae, 2006).

With the reality of social learning acknowledged, it takes only a small additional step to also acknowledge other work-environment factors which influence entrepreneurial learning. As Gibb (2002) states, entrepreneurial behaviour is contingent on the needs of the environment and thus requires a working environment which facilitates and supports this. Nonetheless, most studies that address the potential of the work environment as a learning site focus on employees in a variety of professions, such as nursing (Berings, 2006), teaching (Eraut, 1994) and police work (Doornbos, 2006). These studies are all located in large organizations. The importance of the working environment has just recently gained ground in entrepreneurial learning, whereby the contextual nature of entrepreneurial learning is stressed (Chaston et al., 2002; Dimov, 2007b; Dutta & Crossan, 2005; Jones & Macpherson, 2006; Rae, 2006; Sanz-Velasco, 2006; Zhang et al., 2006). Nevertheless, its empirical application is still limited (Macpherson & Holt, 2007).

Research objectives and the underlying research questions

The four studies in this book pursue our main research objective, namely, the analysis of how entrepreneurial competence can be characterized and identified, how it develops and how it can be fostered in small agricultural firms. This overall objective can be further broken down into three research objectives:

- to characterize and identify entrepreneurial competence;
- to specify how entrepreneurial competence develops;
- to investigate what fosters the development of entrepreneurial competence.

The next two chapters (studies 1 and 2) of this book are concerned with the characterization and identification of entrepreneurial competence, the first research objective. The third and fourth studies delve into how entrepreneurial competence develops and the role the work environment plays in fostering it. All four studies were carried out in small agricultural firms in the Netherlands with special emphasis on greenhouse horticulture, a sector well-known for its innovative strength (Porter & Van der Linde, 1995; Verhees & Meulenbergh, 2004; Van Galen & Ge, 2009) and multifunctional approaches to agriculture that can be seen as an agricultural example of portfolio entrepreneurship (Carter, 2001). All small firms in this thesis comprise what the EU defines as micro (0-9) and small-sized enterprises (10-49).

Consistent with a comprehensive view on competence, a multi-method approach has been adopted in this thesis (Lievens et al., 2004; Sandberg, 2000; Shipmann et al., 2000). Multi-method approaches are differentiated from classical competence approaches in the sense that they not only incorporate general worker attributes but also deploy a more fine-grained analysis of actual work activities, work context and related organizational goals and strategies. As can be seen in Chapters 2 to 5, different approaches to competence are used. Chapter 2 starts by using more general worker-oriented competence descriptions to investigate whether entrepreneurial competencies are recognizable and worth researching from the perspective of our research population. Chapter 3 continues by formulating more comprehensive sets of competence, based on item-level descriptions which empirically define a competence domain. The fourth chapter focuses on the task itself (i.e. opportunity identification and pursuit) and therefore uses concrete work activities employed by owner-managers in different small-firm settings as descriptors of the use and development of competence. Finally, the fifth chapter describes the task environment and social environment which influence the use and development of competence.

In more detail, the first study examines two individual factors that relate to entrepreneurial competence and potentially influence its development, namely, self-awareness and beliefs about the improbability of entrepreneurial competence (Chapter 2). It addresses aspects of the perceived actual self, i.e. self-awareness about entrepreneurial competence, and the possible self, i.e. beliefs about the improbability of entrepreneurial competence (Dweck, 1999; Maurer, 2002). These two elements were studied in a multi-source assessment – an assessment procedure that includes self-perceptions complemented with perceptions from significant others. Thus, the first two research questions formulated in this thesis were:

Q1. How do small business owner-managers evaluate their own entrepreneurial competence, and how do these evaluations relate to the perceptions of significant others in the work environment?

Q2. How do small business owner-managers assess the ‘improvability’ of their entrepreneurial competence themselves and how do these assessments relate to the perceptions of significant others in the work environment?

The second study (analysing, pursuing and networking: towards a validated three-factor framework for entrepreneurial competence) is described in Chapter 3. This study concentrates on identifying the heart of entrepreneurial competence in small agricultural firms. Due to the manifold definitions of entrepreneurship and the situated nature of entrepreneurial activity, there is no objective, one-size-fits-all, list of behaviours which constitute entrepreneurial competence. This is not to say that there are no common domains or structures of competence (Hodkinson, 1995) that will be important in particular settings such as small businesses in agriculture. The current lack of empirically validated domains of entrepreneurial competence is a shortcoming given the discussion on developing more sophisticated measures of human capital (Rauch et al., 2005). In this third chapter, an existing categorization of competence, consisting of six domains, is elaborated and validated building further upon earlier work by Man et al. (2002). Therefore, the following research question was addressed in the second study:

Q3. Do the six domains of entrepreneurial competence, as originally put forward by Man et al. (2002), represent a meaningful clustering in an empirical analysis of entrepreneurial competence in the context of agriculture?

In Chapter 4, the third study (searching for entrepreneurs among small business owner-managers in agriculture) is presented. This study focuses on the relationships between entrepreneurial competence, competence development and entrepreneurial performance. In this chapter, a more dynamic and task-specific lens is applied to investigate the enterprising owner-manager by extending the research results gained in the previous chapter and complementing these results with organizational learning theory. Moreover, a step forward is made by including firm-level variables. This leads to the fourth research question addressed in this study:

Q4. How are entrepreneurial competence, its development and entrepreneurial performance related in small agricultural firms?

Chapter 5, the influence of the work environment on entrepreneurial learning of small business owner-managers, addresses the work environment as a potential contributor to entrepreneurial learning. The concept of learning has traditionally been associated with formal education and training. However, as explained, the learning of owner-managers in small agricultural firms does not tend to be supported by formal education and training. Research from a work-related learning perspective suggests that the work environment plays a crucial role in light of the possibilities it offers for learning and development (Billett, 2001). As Tynjälä (2008: 139) nicely phrases it: *‘Although it is individuals who get ideas in the first place, start small experiments and share them with their personal contacts, it is their larger work communities which create the propitious circumstances for further developing ideas and for disseminating them’.*

Earlier research in the field of work-related learning has suggested many factors in the learning environment which potentially support the learning of managers and

employees (Elkjaer et al., 2006). In this chapter, the role of the work environment in entrepreneurial learning, i.e. learning associated with the identification and pursuit of business opportunities, is investigated. Therefore, the final research question addressed in this thesis was:

Q5. Which factors in the work environment specifically contribute to the development of entrepreneurial competence?

Structure of the book

Figure 1.4 shows how the four studies reported in Chapters 2, 3, 4 and 5 come together. The numbers in the figure correspond to the chapters in the book. These four chapters of this thesis can be read independently and have been submitted to or already published as separate articles in international peer-reviewed scientific journals. In Chapter 6, all four studies are discussed in concert, resulting in conclusions and implications for theory and practice.

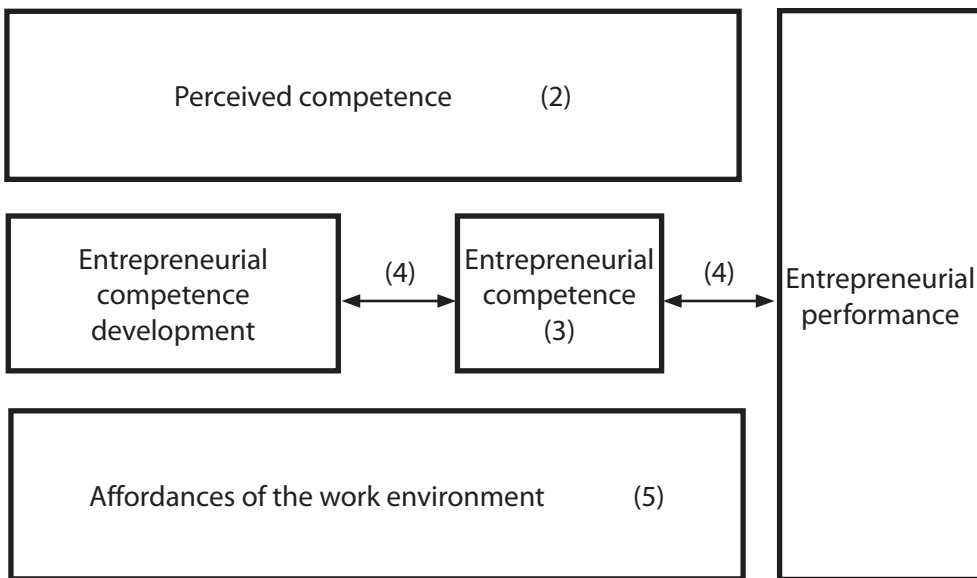


Figure 1.4 Core foci of this thesis and the different studies (represented by chapter numbers).

2

Self-awareness and beliefs about improvability of entrepreneurial competence¹

Chapter 2 reports the results of the first study. This chapter answers the following two research questions.

Q1. How do small business owner-managers evaluate their own entrepreneurial competence, and how do these evaluations relate to the perceptions of significant others in the work environment?

Q2. How do small business owner-managers assess the 'improvability' of their entrepreneurial competence themselves and how do these assessments relate to the perceptions of significant others in the work environment?

¹ This chapter has been submitted as: Lans, T., Biemans, H.J.A., Mulder, M. and Verstegen, J.A.A.M. (submitted). Self-awareness and beliefs about improvability of entrepreneurial competence from a small-firm perspective.



Abstract

This chapter reports the results of a study that explored the concepts of self-awareness and beliefs about improvability of entrepreneurial competence among owner-managers of small businesses in a well-defined innovative small-business sector in the Netherlands: horticulture. The study was carried out by means of a multisource assessment. Research addressing these two concepts has been conducted in large organizations and non-business settings, but there is limited data on these concepts in relation to small firms, particularly from a multisource perspective. The results of the current study show an almost consistent underestimation of entrepreneurial competence and reveal that entrepreneurial competence is seen as being subject to at least some development. The data illustrate the tacit nature of much of what is learned during work and suggest lack of feedback on entrepreneurial accomplishments. Furthermore, they suggest that what is viewed as developed and improvable is not only based on personal 'objective' judgements, but most likely influenced by what is valued and promoted in a particular practice. Multisource assessments as adopted in this study can help owner-managers raise their self-awareness, and consequently help them bypass some of their often costly trial-and-error learning.

Introduction

Small firms are considered to be important contributors to employment, innovation and growth of the economy: 92% of all European enterprises have less than 10 employees (Observatory of European SMEs, 2003). As innovation, growth and strategic renewal require new roles and competencies (Fuller-Love, 2006; Kazanijan, 1988; Sullivan, 2000), owner-managers need to learn to further adapt themselves, develop their strengths or delegate more tasks and responsibilities, e.g. through close cooperation with external partners or by building an entrepreneurial team (Deakins & Freel, 1998). Since owner-managers rarely participate in formal management education and training (e.g. Rowden, 2002; Storey, 2004, see also Chapter 1), competence development is to a large degree dependent on what Ehrich and Billett (2004) call individual agency of the owner-managers to engage in all sorts of informal, work-related, learning activities. Accordingly, if owner-managers are not aware of their situation and not motivated to deploy activities aimed at competence development, the small firm will be vulnerable to changes in the market, competition, technology and societal demands such as those related to the environment and integrity issues.

In this chapter two important aspects are explored that reflect the nature of learning in small firms and potentially influence the decision of owner-managers of small firms to invest in their competence, namely: self-awareness (i.e. awareness of their current competence profile) and the belief that improvement of competence is possible (i.e. beliefs about improvability). Research addressing these two concepts has been carried out in large organizations and non-business settings (e.g. Maurer et al., 2003b; Ostroff et al., 2004), but there is limited data on these concepts in relation to existing small firms (Murphy & Young, 1996) (except some work that has been done on entrepreneurial self-efficacy, a construct which is conceptually related, e.g. Chen et al., 1998).

With respect to self-awareness: studies in education science repeatedly stress that raising awareness and developing an understanding of professional competence, accompanied by a notion of which competencies should be (further) developed in the future by an individual in order for him or her to become a more successful professional, are vital for development in a variety of professions (Boud, 2000; Dall'Alba & Sandberg, 2006; Sadler, 1989). Empirical studies conducted in large organizations have shown that lack of an accurate perception of one's own professional competence correlates with ignorance of criticism, overlooking of failures (for instance mistakes) and lack of feedback-seeking behaviour (Atwater et al., 1998; Jansen & Vloeberghs, 1999); in other words, these professionals are not engaging in, potentially rich learning activities, which are also reported as being important for entrepreneurial learning in small firms (Cope & Watts, 2000).

With respect to beliefs about improvability: from research with college students as well as managers, it is known that learning-oriented behaviour is influenced by the motivation to master new situations and develop new areas of competence, which is closely connected to people's perceptions of the improvability of their skills, abilities and intelligence (Dweck & Leggett, 1988; Maurer, 2002; Maurer et al. 2003a).

Those who view their abilities as more flexible will be more likely to participate in activities that are challenging in terms of learning. Whereas, those who perceive their abilities as more or less fixed will direct their attention to situations that match their current level of ability. The latter group do not see learning and development as a priority (Dweck & Leggett, 1988). An incremental view of competence seems therefore important for developing it.

This chapter reports the results of a study on self-awareness and beliefs about improvability of competence among owner-managers of small businesses in a well-defined small business sector, namely Dutch horticulture. These two concepts were explored by means of a multisource assessment, i.e. an assessment in which the subject is rated by multiple individuals with whom the subject has varying relationships (Craig & Hannum, 2006). Small firms provide an interesting occupational setting, since formalized human resource development (HRD) practices such as multisource assessments are quite rare in this setting.

The focus is on competence related to the entrepreneurial role of the small business owner-manager (Chandler & Jansen, 1992), i.e. entrepreneurial competence. Research on entrepreneurial competence in small firms typically focuses on the identification of all sorts of relevant competencies required at different stages in a variety of small firm sectors (Bird, 1995; Collins et al., 2006; Nuthall, 2006). Other studies have investigated the relationship between entrepreneurial competence of owner-managers and business success, defined as financial performance, growth and the identification of business opportunities (Baum & Locke, 2004; Baron & Markman, 2003; Chandler & Jansen, 1992; Ucbasaran et al., 2008). An important, but poorly investigated aspect of entrepreneurial competence is the notion that underlying competencies are

assumed to be the product of learning and development (Bird, 1995; Caird, 1992). This chapter starts by briefly describing the concepts of self-awareness and beliefs about improvability of entrepreneurial competence as they are central to this study, which leads to the specific research questions, the applied methods, results, discussion and conclusion.

Self-awareness of entrepreneurial competence

Self-awareness, defined as either *'the extent to which the self- and other-raters agree on the level of competence the focal individual (or 'target') attains'*, or *'the extent to which individuals agree on the relative strengths and weaknesses of the target individual'* (Fletcher & Bailey, 2003; 397, 398), has seldom been the direct focus of study in small business and entrepreneurship research. However, many examples suggest that lack of self-awareness impedes small firm development. For instance Hambrick and Crozier (1985) observe that extremely fast-growing firms led by executives who are not aware of their limitations, and therefore do not change their behaviour or delegate part of their tasks to someone else, often end up with low performance or even in bankruptcy. Also Meyer and Dean (1990) state that founders repeatedly blindly rely on their own, often narrow, technical skills, whereas they actually should develop (or hire someone who has) additional managerial and entrepreneurial abilities. Strategic questions like *'what type of business opportunities do I want to pursue in the near future'* and *'am I pursuing the right opportunities'* (contrary to *'am I pursuing opportunities in a good way'*) are not only important in the firm creation phase, but will continue to be important as firms develop. Likewise on a more operational level, to successfully negotiate a new deal with the bank, to convince a potential investor to invest in a new innovative project or to attract and manage new employees, the small firm owner-manager needs to have some insight into his/her entrepreneurial strengths and limitations.

There is a general belief that self-awareness has a positive effect on all sorts of behaviours that facilitate learning, such as openness to reactions and feedback of others, self-monitoring and assessment of other people's qualities (Jansen & Vloeberghs, 1999). Similarly, lack of self-awareness seems to be negatively related to performance. What is important with respect to learning and development is the difference between overestimation and underestimation.

Overestimation is frequently reported in studies of managers in large organizations. Although one might argue that managers who overestimate their level of competence have a positive self-image, high expectations and are optimistic in their self-assessment, research suggests that overestimators have in fact lower actual performance than underestimators or in-agreement assessors (Ehrlinger et al., 2008; Ostroff et al., 2004). Overestimation can lead to ignorance of criticism, overlooking of failures (for instance mistakes) and lack of feedback-seeking behaviour (Atwater et al., 1998; Jansen & Vloeberghs, 1999). Current empirical research on self-insight postulates that overestimators are doubly cursed: they have a lower actual performance and,

due to their lack of reflective skills, are unable to recognize their deficits (Ehrlinger et al., 2008).

Underestimation of competence is usually correlated with good performance (actual performance is often better than the image people have of themselves) (Jansen & Vloeberghs, 1999). Yet this does not mean that underestimation must be seen as a virtue. The 'success' of underestimators has been linked to the tendency to be too negative about weaknesses and/or too modest about strengths. The latter has been shown to be quite common among professionals who are high performers in a particular field. They underestimate themselves basically because they overestimate their professional peers (Ehrlinger et al., 2008). The tendency to overemphasize weaknesses seems to be more problematic in work organizations. Overemphasis of weaknesses may lead to compensation behaviour. Compensation, in a positive scenario, can be sought for instance through outsourcing (let others do that particular task, since I am 'terrible' at it), but it can also lead to putting too much energy into competencies which are not critical for a specific function or perhaps difficult to develop.

So, whereas the overestimator tends to ignore feedback and criticism, the underestimator actually wants feedback, but does not get it. After all, in the eyes of others (e.g. subordinates or clients) the person in question is performing just fine or even very well. In short, overestimation may imply a lack of meta-cognitive skills and motivation to engage in learning activities, whereas underestimation may lead to a situation in which feedback is difficult to obtain and the focus may be on a set of competencies that are not critical or difficult to develop.

Therefore, the first research question is: *How do small business owner-managers evaluate their own entrepreneurial competence, and how do these evaluations relate to the perceptions of significant others in the work environment?*

Beliefs about improvability of entrepreneurial competence

Many studies on professional development measure the relevance and use of all sorts of competencies but few of these explore whether professionals themselves believe it is possible to improve on these competencies, i.e., whether they can be learned (Maurer et al., 2003b). Ideas about flexibility of intelligence, personality, knowledge, skills, abilities and achievements have always been associated with theories on personal motivation and cognitive processes, such as the conception of ability with which people approach complex activities. What seems to be clear from the diversity of concepts used in the learning and development literature is that people differ in their beliefs on how improvable profession-relevant attributes are (Maurer, 2002). Studies on adults in organizations have shown that learning behaviour is connected to opinions on whether it is possible to develop and improve specific competencies (Martocchio, 1994). In terms of continuous learning, beliefs about improvability have been shown to be associated with employee engagement in follow-up training activities (Maurer, et al., 2003a), higher self-efficacy (Martocchio, 1994) and perceived importance of

competencies for success (Maurer et al., 2003b).

Rooted in theories on personal beliefs (i.e. self-theories), Dweck and Leggett (1988) postulated that people see intelligence as an either incremental or static human attribute. Some individuals believe that intelligence is a fixed trait. It is something that we carry with us and is difficult to change. In contrast, incremental theorists believe that intelligence is something that can be improved through learning. Experiments carried out with students show that different self-theories result in differences in performance and learning goals (Dweck, 1999). Dweck (1999) showed that students who perceive their intelligence and abilities as incremental are challenged by new situations rather than plagued by them. On the other hand, students who perceive their intelligence and abilities as fixed are more likely to pass up valuable learning opportunities, such as opportunities that are challenging or pose obstacles. Some researchers point out, however, that in reality people's beliefs fall somewhere along a more continuous scale between the two extreme poles of static and incremental (Garofano & Salas, 2005).

Traditionally, attributes associated with entrepreneurship have been approached from the perspective of innate traits (c.f. Begley & Boyd, 1987; McClelland, 1967). Despite the many efforts that have been put into defining entrepreneurship as an aggregate of general traits, no consensus exists on any taxonomy of traits (Rauch & Frese, 2007). Not surprisingly, in the beginning of the 1990s approaches like these were criticized for paying too little attention to the process of the creation of the organization, and the tasks and activities involved in enabling the firm to come into existence and blossom (Gartner, 1989). As noted above, in this chapter entrepreneurial competence is used as the level of analysis. Competence can be seen as the integration of different elements (such as knowledge, skills and attitudes) necessary in a particular job or task in a specific context (Biemans et al., 2004; Cheetham & Chivers, 1996; Delamare-Le Deist & Winterton, 2005; Mulder, 2001). Entrepreneurial competence encompasses those competencies which are associated with the entrepreneurial role (and not the technical or managerial role) of the small business owner-manager (Chandler & Jansen, 1992).

In summary, the outlined importance of people's conception of improvability of their own (work-related) abilities, combined with the shift in entrepreneurship literature from viewing entrepreneurship as a set of innate traits towards embracing a notion of entrepreneurial competence, lead us to the formulation of the second research question:

How do small business owner-managers assess the 'improvability' of their entrepreneurial competence themselves and how do these assessments relate to the perceptions of significant others in the work environment?

Methods

Participants and setting

The research population consisted of 40 owner-managers, who were selected from a specific Dutch small-business sector, namely horticulture. The horticultural sector is dominated by small firms that operate under highly comparable conditions with respect to climate, laws and regulations, financial institutions, market and availability of labour and technology. Entrepreneurial competence and its development have become increasingly important in this particular sector (De Lauwere, 2005; McElwee, 2008; Phillipson et al., 2004). This importance is reflected in current horticultural trends, such as fast growth, innovations in logistics, innovations in energy-saving technology, production and harvesting techniques and internationalization.

To supplement the self-assessment of the owner-managers with the judgments of others, one external assessor and one internal assessor were selected by each owner-manager to participate in the study. The internal assessor was someone within the business (in most cases a direct employee or member of the management team) who works closely with the owner-manager and is not afraid to judge him or her. The external assessor was someone from outside the firm, who has a professional understanding of the owner-manager's business activities. External assessors were in most cases business consultants or advisers who frequently (several times a year) meet with the owner-managers to discuss selected strategies. The owner-managers were instructed to select objective assessors and all participants were encouraged to be as honest and critical as possible in answering the study questions.

Data collection

Assessment procedures were designed based on the theoretical considerations outlined above and the categorization of entrepreneurial competence for small firms described by Man et al. (2002). The procedures consisted of (1) a self-assessment, (2) an internal assessment and (3) an external assessment. The self-assessment questionnaire consisted of two parts. In the first part the owner-managers had to answer several questions about themselves and their businesses (education, work experience, type of business). In the second part the owner-managers had to assess themselves on twenty underlying competencies which represented the spectrum of entrepreneurial competence as suggested by Man et al. (2002) and further worked out by Lans et al. (2005).

To make the competencies recognizable, they were accompanied by a short, precise, context-appropriate description. For example, networking was described as: *the active development and management of contacts and relationships with (internal) customers, suppliers and other stakeholders*. For each of the twenty competencies the respondents were instructed to indicate to what extent they have mastered it (*self-awareness*) and to what extent they think they can develop it further over the coming five years (*improvability*). The internal and external assessment questionnaires asked

the respondents to assess the owner-manager on the same set of competencies. Again, two questions were asked about each of the twenty competencies: to what extent do the assessors think the owner-manager has mastered it and to what extent do they think the owner-manager will be able to develop it over the coming five years. All ratings were made on a five-point Likert scale ranging from 1 (not at all) to 5 (to a great extent).

Data analysis

To calculate the similarities or differences between the assessments of the owner-managers and those of the other assessors, two commonly used indices for self-awareness were calculated (Bailey & Fletcher, 2002). First, congruence- r , which is the correlation between the self-assessment and other ratings, was computed by Spearman's correlation coefficient. Congruence- r is a measure of the extent to which assessors agree on the *relative* strengths and weaknesses of the owner-managers (i.e. do the different patterns correlate?). If the correlation is high, there is strong agreement about the relative strengths and weaknesses, if it is low, there is little agreement. Although correlation reveals something about the coherence between the self-assessment and other scores, it does not say anything about whether the absolute difference between self-assessment and other scores is large or small. Therefore, a second measure was calculated, congruence- d , which is the standardized difference between two profiles' means. It is calculated by dividing the difference between two ratings by the pooled standard deviation of those ratings (Bailey & Fletcher, 2002). This measure reveals the extent to which all three assessors agree on the level of competence of the owner-manager. If congruence- d is low, there is little difference; thus there is strong agreement about the *absolute* level of competence. If it is high, there is little agreement.

The scores the owner-managers gave in response to the second question (whether they saw possibilities to develop a particular competence further) were also compared with the ratings the internal and external assessors gave for this same question (congruence r and d). To investigate differences between classes of belief in improvability (in Dweck's (1999) terminology very incremental or very static), the responses were divided into three groups, based on the owner-managers' mean perception of improvability over the 20 competencies. The division of the three groups was done by calculating thirds (corresponding to low, moderate and high, whereby the highest group believed strongly in improvability). Subsequently, to find out whether the owner-managers' perceptions of improvability matched those of the internal and external assessors, the means of the two other assessors together (internal-external) were calculated for all the thirds. By adopting this method it was possible to see whether there were significant differences between the owner-managers' perceptions and those of the other assessors within each category, e.g. those who saw many opportunities for development (high group). Differences between the three discerned groups were statistically tested by analysis of variance (ANOVA).

Results

Data of 36 of the 40 owner-managers were suitable for the analysis (108 questionnaires in total). Three cases could not be used because of incomplete assessments; either the internal (two cases) or external assessments (one case) were missing. One case appeared to employ about 420 full-time workers, which did not fit our definition of a small firm.

The average age of the owner-managers was 39 years with 17 years of work experience as owner-manager. More than half of the owner-managers (55%) had work experience outside the sector of their current businesses. About half of the participants (53%) had an intermediate vocational education background, a quarter (28%) lower vocational education or primary school and one-fifth (19%) higher or university education.

Assessment scores

Table 2.1 presents the average assessment scores. The low mean for the self-assessment underlines the general finding in this study that owner-managers underestimate their entrepreneurial competence. This underestimation is significant for the difference between the self-assessment scores and the internal assessors' scores.

Comparing the self-assessment scores with the other scores (Table 2.2) reveals that on average the correlations (congruence- r) between self and internal assessment scores and between self and external assessment scores are small to medium, respectively $r_s = .30$

Table 2.1 Mean assessment scores including standard deviation

Source ^a	Mean	St. dev.
Self	3.31 _a	0.41
Internal	3.60 _b	0.40
External	3.48 _{ab}	0.46
Mean other	3.54 _{ab}	0.30

Note. Judgements were made on 5-point scales (1 = not at all, 5 = to a great extent). ^a $n = 36$ for each group. Means in the same column that do not share subscripts differ at $p < .05$ in the Tukey-HSD comparison.

Table 2.2 Inter-correlations (congruence- r) and standardized differences (congruence- d) of the assessment scores for the different assessors

Source ^a	Congruence- r	Congruence- d
Self-Internal	0.30	0.61**
Self-External	0.36*	0.40
Internal-External	0.08	0.46

Note. ^a $n = 36$ for each group.

* = $p < .05$; ** = $p < .01$

and $r_s = .36$. Moreover, only the correlation between self and external assessment scores is significant. No correlation was found between the internal and external assessment scores ($r_s = .08$). The (mean) differences between the ratings are highest for the self and internal assessment scores ($d = .61$) and lowest for the self and external assessment scores ($d = .40$).

More in detail, Table 2.3 reveals that correlation patterns differ between the self-internal and self-external sets of scores for the 20 underlying competencies. Significant correlations for the self-internal scores are found for the competencies problem analysis, leadership and general awareness. For the self-external scores significant correlations

Table 2.3 Self, internal and external ratings, inter-correlations (congruence- r) and standardized differences (congruence- d) for the underlying 20 competencies

Competencies	Self	Int	Ext	M ^a	Self-Int		Self-Ext		Int-Ext	
					r_s	d	r_s	d	r_s	d
Organizing	3.67	3.89	3.81	3.85	0.19	0.23	0.11	0.14	-0.09	0.08
Problem analysis	3.61	3.66	3.47	3.56	0.47**	0.04	0.20	0.13	-0.06	0.19
Leadership	3.58	3.75	3.67	3.71	0.40*	0.15	0.14	0.08	0.13	0.07
Conceptual thinking	3.51	3.67	3.44	3.56	0.21	0.16	0.01	0.07	-0.07	0.22
Persuasiveness	3.51	3.69	3.49	3.59	0.10	0.16	0.43**	0.03	-0.03	0.18
Communication	3.50	3.56	3.42	3.49	0.05	0.05	0.24	0.07	0.10	0.12
Strategic thinking	3.50	3.60	3.36	3.48	0.19	0.09	0.43**	0.13	0.11	0.22
Planning	3.49	3.57	3.56	3.56	0.07	0.08	0.06	0.07	0.15	0.02
Result orientation	3.46	4.00	3.89	3.94	0.09	0.51**	0.31	0.39*	0.00	0.10
Negotiating	3.39	3.60	3.58	3.59	-0.06	0.20	0.15	0.17	0.08	0.02
Team work	3.34	3.60	3.56	3.58	0.30	0.23	0.29	0.18	-0.20	0.04
Market orientation	3.31	3.81	3.53	3.67	0.21	0.49**	0.13	0.21	0.18	0.27
Networking	3.31	3.50	3.67	3.58	-0.12	0.18	0.35*	0.33	-0.02	0.15
Judgment	3.28	3.40	3.49	3.44	0.28	0.12	0.15	0.20	0.00	0.09
Vision	3.24	3.51	3.33	3.42	0.12	0.25	0.24	0.08	0.24	0.16
General awareness	3.23	3.54	3.67	3.60	0.64**	0.27	0.28	0.39*	0.19	0.11
Management control	3.15	3.60	3.33	3.47	0.02	0.45**	0.09	0.17	0.00	0.25
Value clarification	3.00	3.54	3.39	3.47	0.16	0.48*	0.23	0.32	0.14	0.13
Personnel management	2.79	3.03	2.94	2.99	0.31	0.21	0.28	0.13	0.26	0.08
International orientation	2.39	3.32	3.03	3.18	0.07	0.78***	0.47**	0.51*	0.02	0.25

Note. The competencies are sorted on the self-ratings (high-low). Judgements were made on 5-point scales (1 = not at all, 5 = to a great extent). Self = self-assessment, Int = internal assessment, Ext = external assessment.

^a = (internal assessment + external assessment)/2

* = $p < .05$; ** = $p < .01$; *** = $p < .001$

are found for the competencies persuasiveness, strategic thinking, networking and international orientation. The owner-managers underestimated themselves fairly consistently over all the different competencies, except for communication, problem analysis and strategic thinking (self scores compared to the average 'other' scores). The owner-managers underestimated themselves most (reflected by the highest *d*-scores) in relation to the internal assessors' estimation for the competencies result orientation, market orientation, management control, value clarification and international orientation (all these differences are significant). In relation to the external assessors' scores, the owner-managers underestimated themselves most for the competencies result orientation, general awareness and international orientation (all differences on these competencies are significant).

Improvability scores

The owner-managers as well as their internal and external assessors saw many areas for improvement; they indicated that entrepreneurial competence was improvable to some extent (Table 2.4). The external assessors were the most optimistic about the improvability of the owner-managers' entrepreneurial competence. Nevertheless, none of the mean differences between their assessments and those of the other respondents were found to be significant.

Furthermore, the congruence-*r* and *d* scores show that there is a higher level of agreement (high correlations and low congruence-*d* scores) between what the owner-managers and the internal assessors saw as improvable (Table 2.5). There is little

Table 2.4 Mean improvability scores including standard deviation

Source	<i>n</i>	Mean	St. dev.
Self	35*	3.33	0.62
Internal	36	3.31	0.78
External	36	3.60	0.64
Mean other	36	3.51	0.35

Note. Judgements were made on 5-point scales (1 = not at all, 5 = to a great extent).

* In this case one competency was not assessed, thus the average was not calculated.

Table 2.5 Inter-correlations (congruence-*r*) and standardized differences (congruence-*d*) of the improvability scores for the different assessors

Source	<i>n</i>	Congruence- <i>r</i>	Congruence- <i>d</i>
Self-Internal	35	0.38*	0.02
Self-External	35	0.21	0.29
Internal-External	36	0.17	0.29

* = $p < .05$

agreement, however, between the owner-managers' and the external assessors' scores, or between the internal and external assessors' scores.

Table 2.6 displays the perceived improvability of the twenty underlying competencies separately. According to the owner-managers the competencies networking and leadership are the most promising areas for individual improvement for the owner-managers. Value clarification and international orientation were perceived as the least improvable over the coming five years. Differences between the internal and external assessment scores on improvability seem to reflect a difference in the level of importance attached to certain competencies or familiarity with certain competencies. According to the internal assessors, there is most room for improvement in the areas of

Table 2.6 Self, internal and external improvability ratings, inter-correlations (congruence-*r*) and standardized differences (congruence-*d*) for the underlying 20 competencies

Competencies	Self	Int	Ext	Self-Int		Self-Ext		Int-Ext	
				<i>r_s</i>	<i>d</i>	<i>r_s</i>	<i>d</i>	<i>r_s</i>	<i>d</i>
Networking	3.69	3.39	3.69	0.26	0.27	0.06	0.01	-0.13	0.26
Leadership	3.66	3.49	3.61	0.39*	0.14	-0.13	0.04	0.10	0.11
Strategic thinking	3.60	3.20	3.75	0.29	0.34	0.09	0.14	0.14	0.48*
Communication	3.59	3.51	3.64	0.37*	0.06	0.08	0.04	0.27	0.11
Planning	3.57	3.11	3.72	0.38*	0.38	0.03	0.13	0.18	0.53**
Personnel management	3.51	3.15	3.42	0.34	0.31	0.19	0.09	0.04	0.23
Market orientation	3.46	3.39	3.75	0.23	0.06	0.05	0.26	0.21	0.31
Vision	3.46	3.31	3.53	0.22	0.12	-0.04	0.06	0.22	0.18
Result orientation	3.43	3.29	3.69	0.56**	0.11	0.17	0.22	0.23	0.33
Negotiating	3.37	3.46	3.78	0.18	0.08	0.20	0.40*	0.26	0.30
Organizing	3.37	3.21	3.63	0.31	0.13	0.30	0.22	0.03	0.35
Persuasiveness	3.29	3.26	3.64	0.30	0.02	-0.07	0.30	0.22	0.33
Judgment	3.29	3.17	3.60	0.01	0.10	-0.04	0.30	0.03	0.40*
Conceptual thinking	3.26	3.15	3.47	0.00	0.11	0.25	0.18	0.07	0.29
Problem analysis	3.23	3.24	3.61	0.35	0.01	0.06	0.33	0.26	0.32
Management control	3.23	3.14	3.58	0.40*	0.08	0.01	0.33	-0.01	0.40*
Team work	3.04	3.23	3.47	0.38*	0.17	0.09	0.39*	0.31	0.22
General awareness	3.00	3.17	3.58	0.02	0.15	0.44**	0.50*	0.14	0.37
Value clarification	2.86	3.29	3.53	0.12	0.34	0.08	0.53*	0.25	0.21
International orientation	2.69	3.18	3.38	0.22	0.40	0.17	0.57**	0.09	0.18

Note. The competencies are sorted on the self-ratings (high-low). Judgements were made on 5-point scales (1 = not at all, 5 = to a great extent). Self = self-assessment, Int = internal assessment, Ext = external assessment.

* = *p* < .05; ** = *p* < .01

communication and leadership (typical internally oriented competencies), whereas the external assessors see greater opportunities for developing negotiation skills, market orientation and strategic thinking (typical externally oriented competencies).

Furthermore, correlations between the internal assessment and self-assessment scores are significant for leadership, communication, planning, result orientation, management control and team work. Again, from the view point of the owner-manager this list reflects the more internally oriented competencies. The correlations between the external-assessment scores and self-assessment scores are not significant, with the exception of general awareness.

Finally, Figure 2.1 shows the improvability scores awarded by the internal and external assessors plotted in relation to the owner-managers' own perceptions of their improvability (low, moderate and high). Low represents the average self-improvability scores ≤ 3.05 ($n=12$), moderate $> 3.05 < 3.70$ ($n=11$) and high ≥ 3.70 ($n=12$). The pattern from the self-perceived improvability rank (low-moderate-high) is also significant for what the internal and external assessors perceived as improvable ($F(2,32) = 4.45$, $p < .05$). What is particularly interesting is that the internal and external assessors do not see significant differences in improvability of competence between the two groups of owner-managers who view their own entrepreneurial competence as either fairly improvable (moderate) or highly improvable (high). However, the internal and external assessors are both much more negative about the improvability of the competence of the owner-managers who view their own entrepreneurial competence as unlikely to improve (low improvability) (this difference is significant, $p < .05$ in *Gabriel's* procedure).

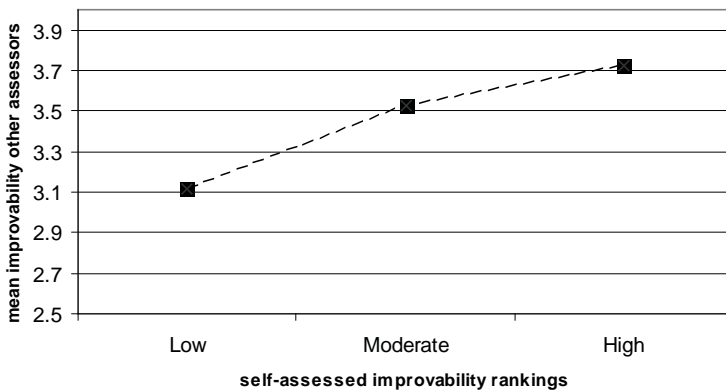


Figure 2.1 Improvability according to the other (internal and external) assessors for the three discerned self-assessed improvability rankings (low, moderate, high). Judgements were made on 5-point scales (1 = not at all, 5 = to a great extent).

Discussion and conclusions

The primary aim of this chapter was to shed more light on self-awareness and beliefs about the improvability of entrepreneurial competence. A multisource assessment of owner-managers was conducted to provide input for discussions on entrepreneurial competence, in particular from a small-firm perspective. The results of the study will be discussed below in relation to the postulated research questions. This will be followed by a discussion of the implications for practice and suggestions for subsequent research.

How do small business owner-managers evaluate their own entrepreneurial competence, and how do these evaluations relate to the perceptions of significant others in the work environment?

While many studies focused on managers in large firms have found a tendency toward overestimation of personal attributes, this study of small business owner-managers found a tendency toward underestimation, although the correlations between self-assessments and ratings of others were comparable (see for instance Church, 1997). A logical explanation, as suggested by Dunning and colleagues (2003), would be that owner-managers tend to overestimate their peers (i.e. professional colleagues), and therefore are too modest about their own qualities. The small business owner-managers' almost consistent underestimation of their own competencies seems to illustrate the tacit nature of much of what they have learned during their work as owners of their firms and suggests a lack of feedback on their accomplishments. However, there are more issues that should be considered in explaining underestimation.

First of all, it could reflect a sampling bias. It is possible that internal and external assessors, because of their power relationships with the owner-managers, were tempted to assess the owner-managers more positively than how they actually perceive the owner-managers' strengths and/or weaknesses. We tried to control for this by instructing the owner-managers to select internal and external assessors who knew the owner-managers' strengths/weakness well and were not afraid to articulate their thoughts. If this was a systematic bias, all the competencies would have received higher internal/external scores compared to the self-assessment scores. However, this is not the case, since the self-assessment scores for some competencies, such as problem-analysis, communication and strategic thinking, are higher than the other scores. The predominant underestimation could also be influenced by a cultural dimension. For example, the consequences of overestimation are much milder in the United States, where most multisource assessments have been conducted, than in the Netherlands (Atwater et al., 2005). This might lead to overly conservative self-assessments by the owner-managers in the Netherlands.

What is also interesting in this particular study is the difference between internal and external ratings. The internal-external correlations are quite low, and are in fact almost non-existent. Differences between internal and external assessments could mean

several things. First of all, the external and internal assessors may in fact not really have a good overview of all the competence areas. This idea seems to be reflected partly in the pattern of correlations between the self-assessment and internal or external scores. The self-internal correlation is the highest in competence areas that relate to the internal management of the firms, such as problem analysis, leadership and general awareness. The self-external correlation is the highest in competence areas which relate mostly to the external environment, namely persuasiveness, strategic thinking, networking and international orientation.

Finally, differences between the internal and external assessors' scores could also be explained by the fact that the assessments of the competencies were conducted on the basis of a context-appropriate, though still rather general, description of the different competencies. If one of the internal/external assessors has a slightly different picture of the competencies in question, he or she might make an assessment of something that was understood differently by the others. Assessors have their own expectations and frames of references, which colour their understanding of the competencies to be assessed.

How do small business owner-managers assess the 'improvability' of their entrepreneurial competence themselves and how do these assessments relate to the perceptions of significant others in the work environment?

This research suggests that all competencies are seen as subject to at least some development. The owner-managers in this study assessed the competencies networking and leadership the highest, reflecting the largest potential for improvement. Value clarification and international orientation were perceived as the least improvable. The score for international orientation could reflect whether a company is focused on internationalization, for example, on a very specific (transcontinental) niche market. If most of the firms in this particular sample were not so much orientated towards these areas, this orientation would not represent an area for improvement. An alternative explanation for the low score is that international orientation is perceived as a more complex construct, which requires many different elements such as foreign language skills, cultural sensitivity and international experience.

As noted earlier, the data also suggest different areas for improvement as perceived by the internal and external assessors. External assessors see more room for improvement for more externally orientated competencies, whereas internal assessors see more room for improvement for internal competencies. A logical explanation for this would be that the internal as well as external assessors have more insight into or attach more value to particular areas, and thus also see more opportunities for improvement in these areas. It is important to note that the owner-managers who perceive their competencies as least improvable were also rated as such by their internal and external assessors. It would be interesting to identify what characteristics set this group apart: whether these include for instance age, education or other factors. Together all the data suggest that what is viewed as improvable and the level of improvability are not only

personal judgements, but also most likely influenced by what is valued and promoted in a particular practice. This aspect was not the focus of this research, but represents an interesting venue for further research.

Implications for entrepreneurship education and training

As stated in the introduction, participation of small firms in formal education and training, including on management development, is low (Storey, 2004). This does not mean that owner-managers of small businesses do not learn (Lans et al, 2004); they learn mostly by doing (Cope & Watts, 2000). However, this type of learning sometimes comes at a price (Cope & Watts, 2000; Fenwick, 2003). Multisource assessments as adopted in this study can help owner-managers raise their self-awareness, and consequently help them bypass some of their (costly) trial-and-error learning experiences.

In this particular case, in which owner-managers consistently underestimated their entrepreneurial competencies, a programme aimed at strengthening entrepreneurial management would have to focus not on competence deficits (which is often the case) but rather on making owner-managers more aware of their entrepreneurial strengths and assisting them in working on their confidence (e.g self-efficacy in general but also specifically concerning learning and development) by providing them with more regular feedback. Furthermore, since this type of assessment functions as a learning and development tool, and not a test, it should also be communicated that way, not in terms of deficits, but in terms of areas for further improvement (this is similar to the notion of core competence of the organization, Prahalad & Hamel, 1990). In education and HRD literature, multisource assessments like these are referred to as formative assessments (Sadler, 1989). Formative assessments are not aimed at trying to acquire the most correct judgement about the competence level (e.g. assessment *of* learning), but are used to acquire more insight into the strengths and weaknesses of the person being rated, as well as to discover areas for improvement by discussing the results (i.e. assessment *for* learning).

A potential advantage of engaging business owner-managers in multisource (formative) assessments, besides stimulating their own development, is that it can help raise awareness about the possibilities and opportunities for learning in the small firm in general. Small firm HRD practices are not only influenced by the owner-managers' attitudes and experiences with HR strategies, but also by interaction with the wider business community (Bacon & Hoque, 2005; Jones & Macpherson, 2006). Interactions with external assessors about learning and development may convince the owner-managers to adopt learning-fostering activities like multisource assessments on a broader scale in the small firm.

Suggestions for further research

Firstly, this research was conducted with a limited number of small firms in a specific sector. It would be interesting to replicate and expand the scale of the same research in different industrial settings (e.g. different sectors and countries), to find out whether and to what extent the broader agricultural context actually influences the results.

Secondly, since this sample of owner-managers was quite consistent in its assessment and underestimation of competencies, we were not able to investigate the difference between over- and underestimators on different performance criteria. Whereas under- and overestimation are both negative from a learning perspective, they might be viewed differently from a performance perspective. For instance literature suggests that, unlike managers, successful entrepreneurs are known to have high levels of entrepreneurial self-efficacy, make decisions based on little (or even counterfactual) information and often fail more than once before starting their most successful enterprise (see e.g. Chen et al., 1998). In simple terms this suggests that such entrepreneurs have a very positive self-image, are very selective in their use of feedback and advice or even ignore it. What is the balance between overestimation and underestimation in relation to learning and performance? With additional data on all sorts of entrepreneurial performance and learning (such as innovativeness, growth, number of employees, participation in training, coaching, learning behaviour, etc.), the effect of under/over estimation could be studied in more detail.

Thirdly, the investigated constructs of self-awareness and beliefs about improvability are conceptually related, but were studied separately in this research. In a more large-scale study it would be interesting to also investigate their empirical relatedness. Similar work has been carried out by Maurer and colleagues (2003a) among constructs such as general or task-specific self-efficacy. More sophisticated data analysis methods (for instance with structural equation models) could be adopted in such a study.

Finally, this research does not provide an answer to the question of whether heightened self-awareness, as can be expected from an intervention like this, does indeed lead to follow-up learning activities. In general, research findings from studies on large organizations suggest that the impact of multisource assessments is relatively weak if they only involve peer or supervisor feedback (Smither et al., 2005). A time-series type of study could look into which combinations of multisource assessments, feedback and other learning-orientated interventions lead to engagement in actual goal-oriented learning activities.

3

Analysing, pursuing and networking: towards a validated three-factor framework for entrepreneurial competence¹

Chapter 3 reports the results of the second study on entrepreneurial competence. This study aimed to answer the third research question addressed in the first chapter.

Q3. Do the six domains of entrepreneurial competence, as originally put forward by Man et al. (2002), represent a meaningful clustering in an empirical analysis of entrepreneurial competence in the context of agriculture?

¹ This chapter has been submitted as: Lans, T., Verstegen, J.A.A.M. and Mulder, M. (submitted). Analysing, pursuing and networking: towards a validated three-factor framework for entrepreneurial competence from a small-firm perspective.



Abstract

Moving beyond general personal traits as predictors for success, a growing volume of research acknowledges that entrepreneurial core processes are enabled by specific competencies which can be learned and further refined and developed. The research objective of this chapter is to develop a framework for entrepreneurial competence in a well-defined small firm sector by elaborating and empirically validating an existing categorization of entrepreneurial competence. Our data set includes 348 small-firm owner-managers who participated in an educational programme established to pursue new business opportunities in the Dutch agriculture. Exploratory factor analysis and confirmatory factor analysis revealed that three domains constitute the heart of entrepreneurial competence in this small-firm context: 'analysing', 'pursuing' and 'networking'. These three competence domains provide professionals active in sector development and (vocational) education with an empirically valid framework of clearly discernible elements of entrepreneurial competence. This framework also encompasses the latest insights on education and learning.

Introduction

Contemporary studies argue that entrepreneurial processes in small firms are enabled by specific entrepreneurial competencies (Ucbasaran et al., 2008). Entrepreneurial competence is not only a matter of predisposition, but also assumed to be influenced by learning and experience (Baron & Ensley, 2006; Detienne & Chandler, 2004). This notion is important, not only for those involved in stimulating nascent entrepreneurship, but also for those engaged in sector development and fostering entrepreneurship education and entrepreneurial learning. Much competence research has been conducted since the 1980s (e.g. Bartram, 2005; Boyatzis, 1982), but this research tradition aims at the selection and development of managers or employees in large firms. Limited attention has been given to entrepreneurial competence in existing small firms (Brinckmann, 2007; Rae, 2007; Sadler-Smith et al., 2003). Although some theoretical categorizations have been suggested for small business (e.g. Bird, 1995; Collins et al., 2006; Man et al., 2002; Nuthall, 2006), quantitative empirical research to further validate and enrich these categorizations is scarce; or as Gibb (2002:139) puts it: *'There are many examples of lists of such behaviours but no universal agreement as to the core'*. This is a major limitation for professionals active in sector development, small business support, and education and training of small business owner-managers, especially in their efforts to design intervention strategies to improve entrepreneurial competence in the light of competence-based learning in Europe (Brockmann et al., 2008; Mulder et al., 2006).

An appealing context for studying entrepreneurial competence in small firms is the Dutch agricultural sector. Covering an area of only 41,500 km², the Netherlands is one of the smaller countries of the European Union and at the same time one of the most densely populated areas in the world. Nevertheless, it is among the world's three largest exporters of agricultural products (next to the United States and France) and accounts for nearly a quarter of European vegetable exports. The animal and plant production sectors are dominated by around 75,000 small firms that operate

under highly comparable conditions with respect to climate, laws and regulations, financial institutions, market and availability of labour and technology. In this context, entrepreneurial competence really makes a difference (Bergevoet, 2005; De Lauwere, 2005; Phillipson et al., 2004). In the last decade, many of these small firms have initiated additional, non-agricultural, business activities such as nature and landscape conservation, recreational activities, healthcare programmes, educational programmes, new product and process innovations, and internationalization (e.g. new and additional companies in Eastern Europe and Africa). Business performance figures show that this is by no means an exit strategy; on the contrary, it facilitates access to new physical, social and human capital and contributes to regional socio-economic development (Alsos & Carter, 2006).

The research objective of this chapter is to develop an empirically validated framework for entrepreneurial competence in this clearly defined small firm sector. This chapter is organized as follows: the first section discusses the key components of entrepreneurial competence in a small firm setting. The second section describes the further elaboration of an existing categorization of entrepreneurial competence. The third section describes the methods applied in this study, followed by the presentation of our results in the fourth section. The chapter concludes with a discussion of the results, conclusions and recommendations.

The boundaries of entrepreneurial competence

One of the first challenges to be faced in relation to entrepreneurial competence in a small business setting is the multitude of definitions that can be found for the key concepts; the diversity of these definitions can lead to confusion, criticism and even cynicism (see for instance Sharma & Chrisman, 1999; Gibb, 2000; Van der Klink & Boon, 2003 and Chapter 1). The definition of entrepreneurship, for example, varies, depending on the perspective, ranging from the creation of a new (additional) business to a matter of behaviour (e.g. being pro-active) or even a type of culture (e.g. entrepreneurial spirit). Competence has also been defined in various ways, involving inputs, outputs, crossing levels of analysis or disciplines, and these definitions range in complexity from narrow, atomized descriptions to highly interpretive constructs (e.g. Delamare Le Deist & Winterton, 2005; Sandberg, 2000). To avoid confusion, we start here by explaining the main concepts in this study.

For the concept of competence, we follow Mulder et al. (in press), who argue that comprehensive interpretations of competence describe and use competence from an integrated, context-specific perspective. Competence in this definition entails the ability to apply clusters of knowledge, skills and attitudes within a specific position and context. This definition of competence follows recent streams of literature in educational sciences and human resource development showing a gradual shift from one-dimensional models of competence (e.g. merely behavioural, or merely functional) to multi-dimensional typologies (Cheetham & Chivers, 1996; Delamare Le Deist &

Winterton, 2005). *'Being entrepreneurially competent does not only refer to the know-how to write a business plan, but it also implies recognizing and acting on opportunities, taking initiative and action, for instance by convincing investors to invest money in a project, and relating to potential suppliers and buyers. It implies that the competent entrepreneur is actually able to identify and further exploit an opportunity within a specific context'* (Lans et al., 2008:365).

In addition to the notion that competence is more than just knowledge, skills or attitudes, studies on competence also emphasize the importance of the malleability of competence (i.e. the possibility to change or shape it) (Biemans et al., 2004; Bird, 1995; Van Merriënboer et al., 2002). The notion of the malleability of competence raises interesting questions like which components still constitute competence and which do not, and what are important moderators? Are relatively stable dispositional (e.g. traits) or motivational (e.g. self-efficacy) constructs still elements of competence (as for instance the work of Boyatzis, 1982, suggests), or should they be treated differently? Markman (2007) argues in this matter (to avoid conceptual confusion) that rather than being an element of competence, these constructs actually influence competence. Personal goals, aspirations and motivations of subjects may influence and shape competence development and therefore should be included in studies on competence development. Small business research conducted as far back as the early 1980s explicitly raised the issue of motivational differences between entrepreneurial and 'normal' small business owners (see for instance the work of Smith & Miner, 1983; Carland et al., 1984). Recent empirical work confirms the mediating effects of motivation on the relation between competence and firm performance (Baum & Locke, 2004).

Besides being influenced by motivational and dispositional factors, entrepreneurial competence will be influenced by a broad compilation of contextual factors such as the organizational life-cycle (Kazanjian, 1988) and, on an even higher level, economic, institutional, demographic and cultural factors (Wennekers, 2006). For example, Baron and Markman (2003) found that the importance of social competence depended on the sector they studied. Whereas perceiving others accurately seemed to be related to financial success in both of the industries they studied (cosmetics and high-tech), social adaptability and expressiveness showed differences between sectors. Social adaptability was related to financial success only in the cosmetics industry, and expressiveness was related to financial success only in the high-tech industry. Therefore, in studies on entrepreneurial competence in existing small firms, broad contextual differences, such as the industrial setting, should be controlled for, or at least taken into account.

Finally, since competencies are latent constructs, judgements about the level, quality or development of competence are always connected to and embedded in activities that individuals perform. To judge entrepreneurial competence, it is therefore vital to define the core activities that are considered entrepreneurial. Do these include being active in innovation and strategic renewal, or is the concept limited to just the creation

of new businesses? General entrepreneurship literature was followed in this case in which there seems to be a high level of consensus in defining entrepreneurial processes as the identification and development (also referred to as pursuit) of opportunities (Shane, 2003). This definition has also been gaining ground in the small firm literature (Macpherson & Holt, 2007). Since the firms in this study already exist, the pursuit of opportunity does not necessarily lead to the establishment of a new venture but more often leads to innovation and strategic renewal (Sharma & Chrisman, 1999). Therefore entrepreneurial activities within small firms are defined as the 'identification and pursuit of opportunities aiming towards new ventures, innovation or strategic renewal'.

Elaboration of an existing categorization

The work of Man et al. (2002) was used as a starting point (see also Chapter 2) in order to develop an empirically validated framework for entrepreneurial competence. They explicitly connect entrepreneurial behaviour in small firms to individual competence, based on a definition of competence which comes close to the definition of competence described earlier. On the basis of an extensive literature review, they assert that entrepreneurial competence consists of six competence domains, namely, opportunity, relationship, conceptual, organizing, strategic and commitment competencies. Although at first sight these domains do not appear to be mutually exclusive, their theoretical grounding made us hypothesize that they would also demonstrate empirical validity in a study of small firms in the agricultural sector. In order to test this hypothesis, the six domains were operationalized in detail and supplemented based on more recent entrepreneurship and sector-specific literature when available.

Opportunity competencies. According to Man et al. (2002), this set draws heavily on the idea of being able to recognize and develop opportunities. Currently, opportunity orientation conceptualizations of entrepreneurship are attracting attention (Shane & Venkataraman, 2000). Depending on the underlying theoretical assumptions of the opportunity concept, different aspects of the opportunity process are placed at the core. Although Man et al. (2002) do not elaborate on the underlying ontological underpinnings of the opportunity concept (e.g. objective versus constructed, Compans & McMullen, 2007; Detienne & Chandler, 2004, see also Chapter 1), different aspects of opportunity recognition are accentuated in this domain. In line with proponents of the active-search viewpoint on opportunities, Man et al. (2002) address the importance of an individual's superior search and assessment strategies. Examples include identifying goods or services that people want and scanning the environment for potential opportunities (Chandler & Jansen, 1992). Man (2001) also includes notions which represent a more passive, fortuitous view on opportunities in this domain, referring to the concept of entrepreneurial alertness as the ability to notice without searching (Gaglio & Katz, 2001) and consequently being able to spot opportunities, for instance in business relationships, in the market and the broader environment.

Relationship competencies. This set refers to the competencies relating to interactions with others. In the identification and exploitation of opportunities, networks play an essential role in the generation and development of new ideas, and in gaining resources and legitimacy (Elfring & Hulsink, 2003). Since external contacts and relationships are often established from scratch, the ability to perceive others accurately seems to be an important underlying element (Baron & Markman, 2003). Furthermore issues of trust and power will most likely play a role in these interactions. Negotiation skills are needed to make successful deals. Finally, more and more research acknowledges the importance of teamwork, either in the successful creation of a new business or in the development of new innovative practices as the owner-manager of a firm (Cooney, 2005). For instance, Sadler-Smith et al. (2003) described in their model the importance of consultative and collaborative working arrangements and heterogeneity in teams for an entrepreneurial management style in small firms.

Conceptual competencies. Man et al. (2002) connect this domain to abilities such as problem solving, separating facts from opinions and seeing the big picture. As we see it, it has an apparent linkage to the previously described opportunity domain. It is complementary in the sense that it focuses more on the systematic development of adequate solutions to complex problems (i.e. emphasizing a more constructed view on opportunities, thus putting perception, interpretation and construction at the heart of opportunity identification). Also, the normative aspects in this process are stressed, namely, the degree of novelty (innovativeness, creativity) involved in arriving at such solutions (see Man, 2001). Competencies that have been empirically shown to be associated with this area include the ability to diagnose problems, connect and rearrange ideas (analysis) and carefully match new ideas with existing knowledge and capabilities (judgement) (Baron & Ensley, 2006; Detienne & Chandler, 2004; Mitchell et al., 2000).

Organizing competencies. The introduction of new goods, services or processes involves the organization of different internal, external, human, physical, financial and technological resources. This area comes closest to the managerial part of running a small firm. It involves internal versus external managerial activities (e.g. financial management, marketing) as well as primary versus secondary activities (logistics, personnel management). These fields include in theory a multitude of lower-level functional tasks and sub-tasks; they lack a clear structure and could easily be a study on their own (c.f. Brinckmann, 2007). In line with Man (2001), this area is viewed on a more general level, encompassing operational competencies such as planning and organizing of non-human resources (e.g. financial, physical and technological) and human competencies such as delegation and leadership (e.g. staff, temporary employees, family). Concrete examples of such competencies mentioned in the literature are the ability to organize and motivate people, organize and coordinate tasks, and delegate effectively (Chandler & Jansen, 1992).

Strategic competencies. This set of competencies focuses primarily on securing the

performance of the small firm in the long run. Most important in this set are activities aimed at planning for the short and long term, looking ahead and anticipating (Nuthall, 2006). Sadler-Smith et al. (2003) found in their study on small firms that ‘managing vision’ was related to an entrepreneurial style. Besides more opportunity-related activities (see opportunity competencies), managing vision concerns goal-setting aspects, as in the development of a (shared) vision and its translation to concrete objectives (result orientation) and strategies to guide the organization. It also encompasses an external perspective in terms of keeping an eye on the external environment (e.g. colleagues, competitors, customers) (strategic orientation).

Commitment competencies. Commitment, in our opinion, has a volition connotation (as in ‘engagement’, ‘drive’, ‘say one will’) as well as a moral connotation (as in ‘duty’, ‘responsibility’, ‘the right thing’). Concerning the volition connotation, there are important links with motivational constructs such as perseverance (overcoming adversity) and self-efficacy (belief in one’s own competence) (Markman & Baron, 2003; Baum & Locke, 2004). Although motives, motivation and some traits are important factors influencing commitment competencies, they do not fit in our competence definition. The moral connotation of commitment gains importance in times of increased attention to social responsibility and sustainability (i.e. ‘green’ management). Small firms are increasingly confronted with dilemmas concerning the balance between people, profit and planet. Running a business is more than just doing things right; it also concerns the question of whether the owner-manager is doing the right things. Therefore it encompasses critical reflective behaviour, which is also an important vehicle for higher-order individual and organizational learning processes (Van Woerkom, 2004). Commitment competencies, as we see them, are therefore not so much dispositional as focused on the task and situation at hand. Although there is little empirical work that directly assesses the impact of competencies such as self-management on performance outcomes, qualitative studies do suggest the – often self-reported – importance of learning abilities (e.g. learning from mistakes, reflection, critical incidents and observation) (Collins et al., 2006; Deakins & Freel, 1998; Man & Lau, 2005; Mulder et al., 2007).

A summary of the elaborated categorization of entrepreneurial competence based upon Man et al. (2002) is provided in Table 3.1.

As stated earlier, our overarching research question was the following:

Q3. Do the six domains of entrepreneurial competence, as originally put forward by Man et al. (2002), and further elaborated in this chapter, represent a meaningful clustering in an empirical analysis of entrepreneurial competence in the context of agriculture?

This overarching research question was further specified in the following sub-questions:

1. *What possible competence domains have, in addition to their theoretical*

- validity, empirical validity from a small agricultural firm perspective?*
2. *What is the statistical robustness of the (newly) developed empirical model of entrepreneurial competence in terms of goodness-of-fit, and convergent and discriminant validity?*

Methods

Setting and participants

Our data set includes responses from 348 small firms in Dutch agriculture that are engaged in additional business activities (diversification), innovation or strategic renewal. At the time of the study, the business owner-managers were all participating in a special training programme in the Netherlands which aimed at facilitating the pursuit of new product-market combinations. The participants were allowed to apply individually to receive this training; however, many of the participants ‘applied’ indirectly; they enrolled in the programme because they were a member of a group or network.

Instruments and procedures

The small business owner-managers who followed the training programme had to initially complete an electronic questionnaire, which was then used as the input for our study. The questionnaire required more than just ticking boxes, so the respondents

Table 3.1 Competence domains of entrepreneurial competence, together with their definitions and underlying dimensions

Competence domains	Definition by Man et al. (2002: 132)	Underlying dimensions
1 Opportunity competencies	Competencies related to recognizing and developing market opportunities through various means.	Pro-active searching Alertness
2 Relationship competencies	Competencies related to person-to-person or individual-to-group interactions.	Teamwork Social perception Negotiating
3 Conceptual competencies	Competencies related to different conceptual abilities reflected in the behaviour of the entrepreneur.	Diagnosing problems Analysis Judgement
4 Organizing competencies	Competencies related to the organization of different internal, external, human, physical, financial and technological resources.	Personnel management Planning and organization
5 Strategic competencies	Competencies related to setting, evaluating and implementing the strategies of the firm.	Result orientation Strategic orientation Vision
6 Commitment competencies	Competencies that drive the entrepreneur to move ahead with the business.	Learning orientation Self management

were requested to take their time and give sufficient thought to the questions. The survey served as the starting point for their training programme, and the results would therefore influence the content of the course.

The questionnaire consisted of three parts. The first part elicited general firm characteristics including size, number of employees, owner-manager's age and his or her reasons (motives and goals) for engaging in additional business activities (diversification), innovation or strategic renewal (Carland et al., 1984). The second part contained 57 items on entrepreneurial competence. Man et al.'s (2002) original clustering was interpreted as described earlier and used to formulate 7 to 14 statements per domain. The questions were tailor-made for this specific target group in order to avoid terms not commonly used in everyday speech and agricultural practice (e.g. typical management jargon such as resources, capabilities, competitiveness, commitment) (Gill and Hodgkinson, 2007). To avoid self-reporting bias we focused the self-assessment on concrete activities that the owner-managers undertake in their businesses. The advantage of focusing questions on actual activities is that such questions are recognizable for the respondent and easier to respond to than more socially desirable, ambiguous clusters of statements like 'As a small business owner I am able to...'. The disadvantage of focusing on activities is that the results then tend to be based only on overt behaviour, revealing very little about underlying cognitive processes. To overcome this, we included questions on 'thinking activities' as well. The statements were rated on a 5-point Likert scale where 1 = 'not at all' and 5 = 'a great deal'. To prevent a matrix completion effect, each statement was presented on a separate computer screen.

Finally, to get a glimpse of our data in the light of generic human capital variables and entrepreneurship typologies, we included questions about education level and years of experience as owner-manager and questions about the Smith and Miner (1983) opportunistic/craftsman typology, using 12 of their original 14 items. The more opportunistic the small business owner-manager is, the more likely it is that the firm will be adaptive and changing (Smith & Miner, 1983).

Data analysis

Data were analysed using both exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). In contrast to traditional exploratory factor analysis, CFA models provide better support for the convergent and discriminant validity of measured variables and identified constructs, and allow for testing of competing models (Curran et al., 1996). Since testing of an identified model requires a new set of data, a holdout sample from the original study was taken randomly (Lattin et al., 2003). We refer to these two samples as the calibration sample and the validation sample. Calibration was conducted on two-thirds of the sample ($n=230$) and validation on one-third of the sample ($n=118$). Exploratory factor analysis (SPSS 12.0.1) was conducted using a Varimax rotation on the 57 items of the calibration sample in order to identify common

factors (i.e. competence domains). As the formation of clear, distinct factors was an important objective, the EFA was conducted in an orthogonal rotation. Horn's parallel procedure was applied, and on the basis of Allen and Hubbard's (1986) regression equation it was estimated unambiguously how many factors should be extracted.

The extracted factor model was further developed through CFA. CFA was performed using LISREL (8.72) (Jöreskog & Sorbom, 2005). All analyses were performed on the covariance matrix. Since our data were collected on a 5-point Likert scale, problems arose because of non-normality of the data (normal-theory methods such as maximum likelihood [ML] and general least squares [GLS] may in these cases result in seriously invalid statistical testing). Although asymptotic distribution free (ADF) methods have been suggested in the literature to deal with the problem of non-normality of the data, large, $n=500$ (Curran et al., 1996), to very large, $n=5,000$ (Hu et al., 1992) samples are reportedly necessary. A second option for computing more accurate statistics under non-normal conditions in samples between $n=200-300$ is to adjust the normal ML chi-square statistic, a procedure which is known in LISREL as robust maximum likelihood [RML] analysis (Curran et al., 1996). RML analysis results in the calculation of the Satorra-Bentler chi-square ($SB \chi^2$), which corrects the normal-theory chi-square.

The overall fit of the identified models was assessed as suggested by using fit criteria from various families of fit indices; absolute fit indices χ^2 ($SB \chi^2$), root mean square error of approximation (RMSEA), goodness-of-fit index (GFI) and the adjusted goodness-of-fit index (AGFI) were used. From the family of comparative fit indices, the non-normed fit index (NNFI) and the comparative fit index (CFI) were used. As far as the quality of the models is concerned, it is generally assumed that, to support a model, the χ^2 - value divided by the degrees of freedom should be smaller than 2; NNFI should be larger than 0.90; CFI should be larger than 0.90 and the RMSEA should be below 0.05 (Koufteros & Marcoulides, 2006). To examine whether the discerned factors were robust, the significance of each item's contribution to the factor was determined by checking the R^2 values and the desired confidence interval of 95 percent, meaning that each item factor estimate should be at least larger than twice its standard error (Anderson & Gerbing, 1988). To test whether the proposed factor model (that is, the discerned competence domains) was more likely than competing models: i) a one-factor model (which is a naive model in which a solution with one factor is enforced) was compared to the proposed factor analysis model, ii) an orthogonal version of the model was tested (this is a model in which all correlations between the factors are set to 0) and iii) the proposed factor model was tested against Man et al.'s (2002) original six-factor model for clustering the items. $SB \chi^2$ - differences were calculated to disclose any significantly superior models. Finally, as mentioned, the complete model was re-tested on a different, validation sample ($n=118$) and benchmarked again against the original Man et al. (2002) clustering of the items.

To further examine the discriminant and convergent validity of the discerned factors, two additional analyses were conducted. Discriminant validity between the tested

factors was measured by calculating SB χ^2 – differences of a competing convergent model (correlation between factors is equal to 1) and a discriminant model (one in which the correlations between the factors are freely estimated). The factors were tested two-by-two as suggested by Anderson and Gerbing (1988). Furthermore, composite reliabilities were calculated to assess whether the factors were sufficiently reliable.

Additionally, to get a glimpse of the external validity of the developed model, Spearman correlations were calculated between the final factor scores (of the total sample, $n=348$) and the Smith and Miner (1983) scores, and between the factor scores and two available general human capital indicators (years of owner-manager experience and education level ranging from 1=pre-vocational to 6=university).

Results

Characteristics of the sample

As mentioned above, the total sample contained 348 respondents. Because the e-questionnaire did not allow items to be skipped, there are no missing values in the data set. The average age of the participants was 45 years, and they had an average of 16 years of work experience as small business owners-managers. Fifty-three percent of the participants were female, 47 percent male. More than 75 percent of the participants indicated that ‘taking advantage of opportunities’ was their most or second most important motive to engage in new business activities, and less than 25 percent indicated that ‘not being able to continue the business in this way’ was their most important motive to engage in new business activities. Almost 50 percent mentioned ‘growth’ as either the first or the second most important goal for engaging in a new business activity, whereas 50 percent replied that ‘keeping the current business going’ was the most important goal. Other motives and goals mentioned were the significance of ‘green management’ initiatives (e.g. stakeholder engagement, social responsibility), the need for new challenges (personal drive), the establishment of new and additional networks, and in some cases family business succession.

Latent competence domains

Because 89 percent of the small business owner-managers who completed the questionnaire were actually micro-enterprise owner-managers (two or fewer full-time employees), questions and responses that specifically addressed businesses with three or more employees were removed from the data set (10 items). Furthermore, 10 items with very low correlations (none of the items correlated extremely highly) were removed from the dataset, resulting in a final set consisting of 37 variables, with a satisfying determinant of 1.46E-05, a Kaiser-Meyer-Olkin (KMO) measure of 0.81 and a significant Bartlett’s test. Factor loadings less than 0.40 were excluded from interpretation. On the basis of Horn’s parallel procedure (Allen & Hubbard, 1986), three or four factors should be extracted. The final factor solution resulted in three clearly interpretable factors, representing latent competence domains (Table 3.2).

Table 3.2 Rotated factor solution: underlying items and factor loadings ($n=230$)

No.	Item description	1	2	3
X1	I know how to describe the challenges in my enterprise (STRA)	0.72	0.16	0.10
X2	I keep an eye on the main issues and thus can point out the heart of a problem (CON)	0.69	0.10	0.22
X3	I am very aware of my own weak and strong points (COM)	0.61	-0.10	0.35
X4	I can name my business goals straight away (STRA)	0.61	0.17	0.09
X5	I have a clear idea about how my enterprise performs in relation to other enterprises in the sector (STRA)	0.58	0.22	-0.23
X6	I easily separate facts from opinions (CON)	0.57	0.10	0.23
X7	I have a clear idea of where my enterprise will be in five years (STRA)	0.50	0.26	0.00
X8	I can easily look at things from various points of view (CON)	0.46	0.15	0.35
X9	I easily identify problems on the work floor (ORG)	0.44	0.04	0.35
X10	I often negotiate with suppliers or buyers regarding our prices (REL)	0.22	0.61	-0.09
X11	I accept challenges more often than colleagues in my sector (COM)	0.10	0.60	0.10
X12	I am continuously looking for new possibilities (OPP)	0.14	0.57	0.27
X13	I am often the first to try out new things (OPP)	0.10	0.51	0.27
X14	I look for new information all the time (OPP)	0.12	0.49	0.38
X15	I consider the funding policy of (international) government to be an excellent opportunity (OPP)	-0.01	0.48	0.03
X16	I am not easily diverted from the goals I set for myself (COM)	0.10	0.46	0.06
X17	My goals are laid down in written plans (STRA)	0.39	0.41	0.16
X18	Co-operation with entrepreneurs in my sector is important for me (REL)	0.11	0.07	0.58
X19	I try to incorporate feedback from the public in my products (COM)	0.01	0.22	0.57
X20	I am involved in activities which contribute to a positive image of my professional group (COM)	-0.10	0.18	0.57
X21	During my presentations I can put my ideas across easily to my audience (REL)	0.16	0.14	0.54
X22	I am open to criticism from others (colleagues, employees, etc.) (COM)	0.12	0.03	0.47
X23	I have many networks outside the agricultural sector (REL)	0.21	0.28	0.43
X24	I evaluate my own actions as much as possible (COM)	0.35	0.11	0.43

Note. Between brackets the original Man et al. (2002) coding: OPP = opportunity; REL = relationship; CON = conceptual; STRA= strategic; ORG = organizing; COM = commitment.

Factor 1 represents items that are closely connected to conceptual competence. It concerns cognitive abilities, in particular the ability to analyse occupational core challenges, interpret them (thinking about their relative importance, their interrelationships, and whether they can be generalized) and make inferences (predications based on trends, conditions and tendencies for instance), which are laid down in goals or strategies. This factor was labelled *analysing*. Factor 2 represents items that emphasize the attitudinal component of entrepreneurial competence, such as taking initiative and being pro-active. It concerns pro-activeness in two different ways, namely, pro-activeness in searching for new opportunities and pro-activeness in current management practices.

This factor was labelled *pursuing*. Factor 3 represents social competence. It concerns social competence on two levels, namely, the competence to ‘get through the door’ and the competence to manage networks. Getting through the door is associated with being responsive, persuasive and able to adjust to others. Managing networks is related to being able to cooperate with other entrepreneurs, and being open to feedback and suggestions from others. We labelled this factor *networking*.

Table 3.2 shows that typical meta-cognitive activities, such as reflection, self-awareness and self-evaluation, have relatively high loadings on both Factor 1 and Factor 3.

Additional analysis

The covariance matrix was used to conduct confirmatory factor analysis. The first step was to check the completely standardized solution of the initial three-factor model derived from exploratory factor analysis. This first analysis resulted in reasonable fit indices; SB χ^2 was 377.20 with 249 degrees of freedom, leading to a ratio of 1.51. Both CFI (0.97) and NNFI (0.97) indicate a reasonable to good fit of the initial model. The RMSEA of 0.047 supports this finding. All the factor loadings, variances (of common and unique factors) as well as the covariances among common and unique factors meet the criteria (factor loadings between 1 and -1; variances between 0 and 1 and covariances between 1 and -1).

Nevertheless, to continue, the performance of the factors and the underlying items was checked. The modification indices (MI) suggested that freeing the paths from six items to other factors would improve the fit. Since we were primarily interested in developing our identified constructs as unambiguously as possible (the core), these six items were left out of the final analyses. Furthermore, the standardized residuals showed that a substantial improvement in fit could be obtained by allowing covariances between the error terms of the variables. However, at first sight there did not seem to be a clear pattern suggested in the MI. Since we did not have any additional theoretical or empirical justification allowing for covariances between the error terms, we decided not to make these model modifications.

Table 3.3 presents the completely standardized solution as was used in the subsequent analysis. Table 3.3 shows that items with a relatively high loading on multiple factors were removed (X9, X17 and X24). Furthermore, some specific situation-related items, such as X5, X15 and X20, did not return in the final model. These decisions were supported by the various fit indices described previously.

From Table 3.4, model 1, it can be seen that the SB χ^2 was 182.10 with 132 degrees of freedom, leading to a ratio of 1.38. Both CFI (0.98) and NNFI (0.98) indicate a good fit of the model. The RMSEA of 0.04 supports this finding. The identified oblique model performs better than the two competing models (one factor and orthogonal). The SB χ^2 differences [$\Delta\chi^2_{\text{model 1-2}} = 148.64$ ($\Delta df = 3$), $\Delta\chi^2_{\text{model 1-3}} = 85.31$ ($\Delta df = 3$)], all highly significant, demonstrate the construct validity of the suggested three-factor model

Table 3.3 Completely standardized solution from CFA ($n=230$)

Factor	Nr	Item description	Loadings
(1) Analysing	X2	I keep an eye on the main issues and thus can point out the heart of a problem (CON)	0.80
	X1	I know how to describe the problems in my enterprise (CON)	0.73
	X6	I easily separate facts from opinions (CON)	0.66
	X3	I am very aware of my own weak and strong points (COM)	0.64
	X4	I can name my business goals straight away (STRA)	0.61
	X8	I can easily look at things from various points of view (CON)	0.58
	X7	I have a clear idea of where my enterprise will be in five years (STRA)	0.51
(2) Pursuing	X14	I look for new information all the time (OPP)	0.72
	X12	I am continuously looking for new possibilities (OPP)	0.69
	X13	I am often the first to try out new things (OPP)	0.63
	X11	I accept challenges more often than colleagues in my sector (COM)	0.59
	X16	I am not easily diverted from the goals I set for myself (COM)	0.48
	X10	I often negotiate with suppliers or buyers regarding our prices (REL)	0.45
(3) Networking	X23	I have many networks outside the agricultural sector (REL)	0.60
	X21	During my presentations I can put my ideas across easily to my audience (REL)	0.57
	X19	I try to incorporate feedback from the public in my products (COM)	0.52
	X18	Co-operation with entrepreneurs in my sector is important for me (REL)	0.50
	X22	I am open to criticism from others (colleagues, employees, etc.) (COM)	0.44

Note. Between brackets the original Man et al. (2002) coding: OPP = opportunity; REL = relationship; CON = conceptual; STRA= strategic; ORG = organizing; COM = commitment.

(model 1). This is further supported by the decrease in all the fit indices. Additionally, the model was tested against the original six-factor Man et al. (2002) model (model 4 in Table 3.4). Model 4 also reflects an inferior fit in the various fit indices compared to model 1.

The final model was also tested on the validation sample ($n=118$) (model 5 in Table 3.4). The validation model also resulted in a good SB χ^2 and χ^2/df ratio (1.42), CFI (0.96) and NNFI (0.95). Only the RMSAE seems to be a bit higher than the suggested 0.05. To do a last check, the validation sample was tested against the original Man et al. (2002) clustering. Again, the three-factor validation model was superior to the six-factor clustering by Man et al. (2002) (compare models 5 and 6 in Table 3.4), as suggested by the various fit indices.

The discriminant validity of the three factors in the final model was calculated by comparing the factors two-by-two. The results are presented in Table 3.5. As can be seen, the SB χ^2 differences are all significant ($df = 1$). This suggests that, although the

three factors correlate with each other, they are also clearly different from one another (therefore representing different elements). Finally, the reliability of the established factors was assessed (Table 3.6). The reliability of the factors was calculated, based on the completely standardized solution. The composite reliability for analysing was 0.84, for pursuing 0.77 and finally for networking 0.66.

Table 3.4 Fit indices for the tested models

Model type	SB χ^2	<i>df</i>	SB χ^2/df	GFI	AGFI	CFI	NNFI	RMSEA
(1) 3-factor oblique (<i>n</i> =230)	182.10	132	1.38	0.86	0.82	0.98	0.98	0.041
(2) 1-factor ^a (<i>n</i> =230)	330.74	135	2.45	0.78	0.72	0.93	0.92	0.080
(3) 3-factor orthogonal ^b (<i>n</i> =230)	267.41	135	1.98	0.82	0.77	0.95	0.94	0.065
(4) 6-factor original (<i>n</i> =230)	932.07	614	1.52	0.72	0.68	0.96	0.96	0.048
(5) Validation ^c (<i>n</i> =118)	187.54	132	1.42	0.76	0.69	0.96	0.95	0.060
(6) Validation ^c 6-factor original (<i>n</i> =118)	893.12	614	1.45	0.65	0.60	0.92	0.91	0.062

^a single factor model in which a one-factor solution has been enforced. ^b three-factor model in which all the inter-factor correlations were constrained to equal zero. ^c validation sample (*n*=118). SB χ^2 = Satorra-Bentler chi-square, *df* = degrees of freedom, GFI = goodness-of-fit index, AGFI = GFI adjusted for degrees of freedom, CFI = comparative fit index, NNFI = non normed fit index, RMSEA = root mean square error of approximation.

Table 3.5 Discriminant validity based on intercorrelations, and χ^2 differences between fixed and free models [SB χ^2] (*df* = 1)

Factor	(1) Analysing	(2) Pursuing
(2) Pursuing	0.549 [$\Delta\chi^2$ 122.71]*	–
(3) Networking	0.652 [$\Delta\chi^2$ 34.88]*	0.642 [$\Delta\chi^2$ 35.19]*

* $p < 0.0001$.

Table 3.6 Composite reliability scores, number of items, means and standard deviations (SD) of the new scales (*n*=230)

Factor	Composite reliability	Number of items	Mean (SD)
(1) Analysing	0.84	7	3.30 (0.86)
(2) Pursuing	0.77	6	3.38 (0.88)
(3) Networking	0.66	5	3.60 (0.85)

Table 3.7 Spearman's correlation of the new factor scales with Smith and Miner's (1983) type of entrepreneur, education level and years of owner-manager experience ($n=348$)

Factor	Type of entrepreneur	Education level	Years of experience
(1) Analysing	0.28**	0.23**	-0.05
(2) Pursuing	0.35**	0.07	0.08
(3) Networking	0.36**	0.17**	-0.13*

* $p < .05$ level (2-tailed) ** $p < .01$ level (2-tailed).

A glimpse of criterion-related variability

The factor scores of the three factors were subsequently correlated with items on entrepreneurial type, education level and years of experience. Table 3.7 reveals that there is a positive relationship between the three factors and an opportunistic style (type of entrepreneur), showing the strongest effect for Factor 2 (pursuing) and Factor 3 (networking). Education level seems to correlate mostly with Factor 1 (analysing) and Factor 3 (networking). Years of experience has a small negative correlation with Factor 3 (networking).

Discussion and conclusions

In this study we elaborated and tested an existing characterization of entrepreneurial competence in a well-defined small firm setting, building further upon earlier work of Man et al. (2002). To discuss the results we refer to our original research question:

Q3. Do the six domains of entrepreneurial competence, as originally put forward by Man et al. (2002), and further elaborated in this chapter, represent a meaningful clustering in an empirical analysis of entrepreneurial competence in the context of agriculture?

We must conclude that our analyses suggest a different configuration than the six domains originally proposed by Man et al. (2002). Specifically:

- 1. What possible competence domains have, in addition to their theoretical validity, empirical validity from a small agricultural firm perspective?*

The conducted factor analyses suggest three distinct factors, which we labelled: analysing, pursuing and networking. This division is empirically elegant since it matches quite well with various schools of thought on competence (Delamare LeDeist & Winterton, 2005; Bartram, 2005). Generally speaking, the factor solution makes a distinction between competencies that focus on 'getting ahead' and competencies in the social domain, i.e. 'getting along', a well-known distinction in generic competence modelling (Bartram, 2005).

In line with Delamare LeDeist & Winterton (2005) the findings also suggest that cognitive

and social processes are at least as important to consider as behavioural aspects of competence. More specifically, the proposed model challenges the mutual exclusiveness of the opportunity, conceptual and strategic domains as originally formulated by Man et al. (2002). The items associated with those domains essentially come together in two distinct factors, namely, analysing and pursuing. These two factors underline the distinction between a cognitive, constructivist view on opportunity identification, and the more behavioural, active-search view on opportunity identification. Moreover, what we conceptualized as commitment competencies (involving self-reflection) did not seem to constitute a separate factor, but elements of this domain returned in all three factors. This makes sense as well, since this competence domain predisposes the acquisition of other substantive competencies. Similarly, organizing competence, involving planning, organization and personnel management, did not constitute a separate factor in our model. This could be partly explained by the fact that most of these firms had two or fewer full-time employees. Furthermore, general planning and organizing competence can be seen as a threshold competence domain rather than as a distinctive competence domain (Bird, 1995).

2. *What is the statistical robustness of the (newly) developed empirical model of entrepreneurial competence in terms of goodness-of-fit, and convergent and discriminant validity?*

The empirical model for entrepreneurial competence developed in this study successfully passed multiple empirical validation tests. The randomly selected holdout sample that was used in the confirmatory factor analysis showed that the model and factors elicited in the exploratory factor analysis were, within our sample, superior to several alternative models. As was described in the results section, the structural equation models (LISREL, Jöreskog & Sorbom, 2005) came up with suggestions for modifications to get an even better fit of the model (such as allowing for correlated error terms). However, since there is no theoretical support for all modifications, a slightly adjusted original model from the exploratory factor analysis was considered to be superior. Convergent as well as discriminant validity suggest that, although the factors (representing three domains) are related to each other, they are clearly distinct.

More specifically, the items in the three factors seem to indicate that they encompass on a theoretical level more than just one clear-cut element. For instance, the first factor, analysing, encompasses at least two theoretically discernable abilities, namely, the analysis of situations as well as their interpretation. Despite this theoretical differentiation, the fact that these items do correlate well suggests that they are empirically concurrent. Rather than being a weakness, this could also be seen as a strength, suggesting that such factors display higher construct validity than factors whose items are in fact rephrases of each other (so-called bloated specifics) (Gill & Hodgkinson, 2007).

In order to be become certain about the boundaries and impact of these new domains, additional statistical analyses should be done. These analyses should follow two tracks

with the aim of enhancing researchers' understanding of the nature and importance of entrepreneurial competence in small firms. Firstly, how do the identified domains behave in relation to other theoretically related constructs (i.e. convergent validity)? Although this was not the objective of our study, it would be interesting to correlate these domains to more specific constructs than generic human capital proxies – for instance by correlating the domain 'pursuing' to the construct of new-resource skill as examined by Baum and Locke (2004) in North American architectural woodwork firms, or to measures of pro-active personality researched by Crant (1995) among real-estate agents. A candidate for 'analysing' would be the more generally defined construct of cognitive ability (Unger, 2006) or more task-specific constructs like venture diagnostic ability and ability/opportunity-fit as described and used by Mitchell et al. (2000) in a diverse sample of start-up ventures in the Pacific Rim. Convergent validity for the domain 'networking' could be tested by correlating it with general social skill constructs such as social adaptability and social perception, which were used by Baron and Markman (2003) in the cosmetics and high-tech industry.

Secondly, we were not able to ascertain the extent to which the identified domains are related to entrepreneurial performance criteria. The preliminary analysis we conducted already suggested that the three domains correlate to opportunistic small business owner-managers based on the classic craftsmen-opportunistic dichotomy. However, more sophisticated measures are necessary: for instance, firm level entrepreneurial characteristics such as entrepreneurial orientation (Lumpkin & Dess, 1996) or more tangible entrepreneurial performance outcomes such as growth and innovation (Murphy et al., 1996), hence also criterion-referenced measures as suggested by Gill and Hodgkinson (2007).

Moreover, as the results of this study were derived from a specific sector with specific features, they are context specific. Baron and Markman (2003) as well as Man and Lau (2005) report that competence scores do differ significantly among sectors and (since the differences in Table 3.4 are small) the Man et al. (2002) six-factor framework may be the dominant one in other contexts. We suggest that in further research our findings be tested in and for other small-firm sectors, including the possibility of relating the findings to measures of entrepreneurial and firm performance. Doing so will further strengthen the application of these findings to enhancing small firm entrepreneurial competence.

Implications for practice

The tested three-factor model in this chapter represents a potential framework of entrepreneurial competence which will be of special interest to professionals active in sector development, small business support, and education and training of (future) small business owner-managers. With regard to sector development, such a framework will be especially interesting for those who are involved in entrepreneurial skill development programmes in agricultural and rural settings. These have been put in place all over

the European Union to encourage a reduction in agricultural dependence on public sector support and a reorientation towards the market and portfolio entrepreneurship (e.g. Rudmann, 2008). The underlying items in the questionnaire can help to specify recognizable entrepreneurial learning-related activities as well as to design assessments that strongly relate to agricultural entrepreneurship.

In relation to education and training, the results are helpful for educational policymakers who are involved in designing competence-based education as part of the transition of national vocational education qualification structures, which will be aligned to the overall European qualification framework (EQF) in 2010 (Brockmann et al., 2008). For instance, in Dutch vocational education and training (VET), which includes agriculture, the role of manager-entrepreneur is explicitly defined. Avoiding the functional-behaviouristic trap of formulating endless lists of fragmented behaviours (which characterized the heavily criticized competency movement in the 1970s in the USA, see Chapter 1), the three broad – though distinct – domains can provide educational policymakers active in VET with a first empirically validated framework of clearly discernible elements of entrepreneurial competence in a specific small-firm context. Consistent with the comprehensive, context-specific view on competence adopted in this study, further development of the framework implies that the formulated domains should be considered as guidelines rather than a prescription, and that their specific meaning is obtained through discussion and interpretation with relevant stakeholders (Lans et al., 2008).

4

Searching for entrepreneurs among small business owner-managers in agriculture¹

This chapter reports the results of the third study, which aimed to answer the fourth overarching research question of this thesis.

Q4. How are entrepreneurial competence, its development and entrepreneurial performance related in small agricultural firms?

This research question was further specified in this chapter as:
How do high- and low-performing small agricultural firms differ in terms of the extent to which their owner-managers develop and use specific entrepreneurial competence?

¹ This chapter has been submitted as: Lans, T., Van Galen, M.A., Verstegen, J.A.A.M., Biemans, H.J.A. and Mulder, M. (submitted). Searching for entrepreneurs among small business owner-managers in agriculture.



Abstract

The relationships between entrepreneurial competence, competence development and entrepreneurial performance in small firms represent an area that has fascinated researchers for decades. Identifying such linkages is also important for agricultural research and practice. In this study modern concepts of individual competence were integrated with entrepreneurship and organizational learning theory, leading to the following research question: How do high- and low-performing small agricultural firms differ in terms of the extent to which their owner-managers *develop* and *use* specific entrepreneurial competence? A multiple-source case study was conducted in which quantitative and qualitative data from 19 horticultural firms in the Netherlands were combined. Based on the differences between high- and low-performing firms, seven propositions were formulated that further specify the relationships between entrepreneurial performance, the owner-managers' competence and the development of this competence. The results indicate that the relationship between entrepreneurial performance and competence is influenced by business goals and the owner-managers' competence awareness. It is proposed that entrepreneurial performance is correlated with the development of competence associated with the first phase of the identification and pursuit of an opportunity. Furthermore, the results suggest interdependence between existing competence and competence development within competence domains (horizontal development), and between competence domains (vertical development).

Introduction

What is entrepreneurialism in agricultural firms, and how is it learned and developed in a sector traditionally dominated by family firms, a production orientation, protectionism and an innovation infrastructure in which knowledge used to be freely available? Entrepreneurialism in agriculture is often equated with a particular role or style of farmer/horticulturalist which focuses on gaining profit, efficiency, specialization, expansion and optimization of management (e.g. Commandeur, 2006; Groot Koerkamp & Bos, 2008). Entrepreneurs are thus solely portrayed as money-driven, efficiency-orientated, optimizing managers. This representation, however, only partly reflects the conceptualization of entrepreneurship which has gained ground over the last decennium among entrepreneurship scholars, who see entrepreneurship as the scholarly examination of the processes of identification and pursuit of opportunities, including the individuals who identify and pursue them (Shane & Venkataraman, 2000).

Identification and pursuit of entrepreneurial opportunities are (also) considered to be important processes for agricultural firms (Batterink, 2009; McElwee, 2008; Stathopoulou et al., 2004). Through these processes farmers and growers are able to effectively respond to changes in the policy environment, markets, competition, technology, societal demands and sustainability. It can be observed from specific, often anecdotal, examples in daily practice that some agricultural owner-managers seem to be quite successful in developing themselves as 'entrepreneurs' as conceptualized above, for instance through diversification or product innovation. However, it is not clear what they have learned in this process and whether this learning is indeed related to

performance. In other words, how are entrepreneurial competence, its development and entrepreneurial performance related in small agricultural firms?

This question is intriguing from a scientific as well as practical point of view. From a scholarly perspective, there is a growing body of research that acknowledges the importance of moving beyond classical entrepreneurial human capital variables (i.e. education and prior experience) in explaining performance, for instance by focusing more on cognitive abilities, social skills and behaviours (see for instance Baron & Markman, 2003; Dyer et al., 2008; Rauch et al., 2005). Furthermore, researchers stress that learning and development of entrepreneurial human capital by owner-managers of existing small firms has been a neglected area of research (Rae, 2007). From a practical point of view, entrepreneurial learning and development requires that owner-managers have insight into their own entrepreneurial profile, strengths and weaknesses and an awareness of typical (often implicit) behavioural patterns. A better focus on what is relevant for owner-managers and what is subject to learning and development could improve learning for entrepreneurship in agriculture.

This chapter is structured as follows. The next section unfolds the underlying theoretical framework central to this study. This is done by introducing four perspectives on owner-managers' inputs to entrepreneurial endeavours. The discussed literature strands include trait, human capital, competence and organizational learning perspectives on entrepreneurship. Subsequently, the firm performance, or output, side of entrepreneurship is discussed. The theoretical framework is followed by sections in which the applied methods and results are reported. Finally, conclusions and implications for researchers and practitioners are discussed.

Theoretical framework

Beyond traits and general human capital

In research on desirable assets of entrepreneurs, a variety of characteristics have been scrutinized. Rooted in theories of personality psychology, essential, stable traits of entrepreneurs have been identified such as high need for achievement (McClelland, 1967) and internal locus of control (Begley & Boyd, 1987) (see Rauch & Frese, 2007, for an overview and meta-analysis). In the beginning of the 1990s, approaches like these were heavily criticized for suffering from a 'superman' syndrome (no one has the complete package), and influential scholars in the field questioned whether this research tradition would lead to a better understanding of entrepreneurial behaviour (Gartner, 1989) given the generic nature of traits. Furthermore, a stable characteristics view could never explain why studies reported significant relationships between participation in entrepreneurship education programmes and entrepreneurial success (based on growth, survival rates and income) (Charney & Libecap, 2000).

A second stream of research which studies the relation between entrepreneurial inputs and firm success has its origin in management/economic theory. Studies which

traditionally focus on the relation between financial success and human resources have their roots in human capital theory (Becker, 1964). This theory was used to study the effects of employee investments in human capital on earnings and consumption (Becker, 1964). Later, human capital theory was applied to small firm settings as well, where it has been studied as a characteristic of the entrepreneur in relation to business performance. Human capital in such studies includes a hierarchy of knowledge and skills at a given point in time, which are more or less transferable (Ucbasaran et al., 2008). A well-established body of literature outlines the positive relationship between all sorts of human capital variables of the entrepreneur and firm performance (e.g. Colombo & Grilli, 2005; Davidsson, 1991). Such studies on human capital share a pragmatic, but simplistic operationalization of human capital. Typical examples of such operationalizations include years of experience and types of education, which only touch superficially upon the behaviours and activities implemented by entrepreneurs when performing their work (Skuras et al., 2005) and provide little insight into the complex relationships and synergistic effects often observed between human capital and performance (Baum et al., 2001; Rauch et al., 2005).

The concept of competence can be seen as a third conceptual strand for studying specific entrepreneurial human capital in small firms (Man et al., 2002). Although a focus on competence in relation to performance is not essentially new (Boyatzis, 1982; McClelland, 1987), its meaning and use in the scientific literature have changed considerably in a variety of professions during the last decade (Bolden & Gosling, 2006; Capaldo et al., 2003; Cheetham & Chivers, 1996; Hager, 2004; McMullan et al., 2003; Sandberg, 2000; Velde, 1999) (see also Chapter 1). Unlike previous definitions of competence as a unique de-contextualized construct which could be anything from a trait to specific knowledge, current interpretations of competence represent a comprehensive, context-specific conceptualization of the construct. Competence is here defined as the ability to apply a set of integrated knowledge, skills and attitudes within a specific position and context (Mulder et al., in press). *Entrepreneurial* competence can thus be seen as the competence related to the identification and pursuit of opportunities; which is a specific but essential task in small business management that relates to firm innovation, diversification and growth. More specifically, it refers to activities such as identifying customer needs, scanning the environment, formulating strategies, bringing networks together, taking initiative, introducing diversity and collaboration (Bird, 1995; Chandler & Jansen, 1992; Dyer et al., 2008; Gibb, 2002; Man et al., 2002; Sadler-Smith et al., 2003). This task thus excludes other important, typically technical or managerial tasks such as managing production processes, supply-chain management, personnel administration, finance and control.

Thus, contrary to the trait and general human capital approaches, competence as defined here introduces a more task-specific lens to the study of the enterprising owner-manager in small firms.

Entrepreneurial competence from a dynamic perspective

In small business and entrepreneurship literature two sets of research questions that address entrepreneurial competence have been studied. One aims at the explorative identification of all sorts of relevant aspects of entrepreneurial competence in a variety of industries including primary production (e.g. Man & Lau, 2005; Nuthall, 2006). A second, much smaller, strand of research has tried to link self-assessed competencies of owner-managers to venture performance (e.g. Chandler & Jansen, 1992). However, both types of studies reveal little about the dynamics involved in the use and development of competence. Furthermore, approaches like these suggest that entrepreneurialism is a purely individualistic practice, and this assumption is not supported by narratives and case studies of professional practice and entrepreneurship which identify social interaction as a major driver for entrepreneurial learning and development (Dimov, 2007a; Drakopoulou Dodd & Anderson, 2007; Rae, 2006).

While there are various models of organizational learning, the so-called four I (4I) model of Crossan and colleagues (1999) is particularly applicable for a more dynamic approach to entrepreneurial competence. It is the only (organizational) learning model we know of which has been described in close relation to the process of identification and pursuit of opportunities (Dutta & Crossan, 2005) and which allows for studying individual development without neglecting social mediation. The original Crossan et al. (1999) model consists of four processes, which mark different phases associated with the overall, ongoing process of identification and pursuit of opportunities. It begins with *intuiting* (the first I), which is the phase in which the individual (e.g. entrepreneur) begins to develop insight with respect to a possibility or business opportunity. Important aspects of this process are experience, alertness and information-seeking behaviour (Crossan et al., 1999; Zietsma et al. 2002). The second and third processes in the 4I model are *interpreting* and *integrating*. In these two processes there is a move away from the individualistic character of learning. Whereas interpreting emphasizes the importance of networking (to create a clearer meaning of the idea), integrating stresses the creation of better understanding through dialogue and joint action, such as experimentation (Zietsma et al., 2002). The fourth I, *institutionalizing* emphasizes the organizational level of learning in terms of how the entrepreneur integrates his/her individual learning into structures, systems, procedures and strategies.

Jones and Macpherson (2006) add that the 4I model should give more prominent consideration to organizations adjacent to the small firm, since opportunities for new products and services often require involvement of an external partner (e.g. a chain or network partner) (Batterink, 2009). Therefore they add a fifth I, *intertwining*, which represents active engagement with other firms, as an important source for introducing new ideas as well as exploiting existing ones (Jones & Macpherson, 2006).

Thus, departing from the individual level of analysis, but acknowledging active social mediation, the development of entrepreneurial competence can be seen as a dynamic process of moving from the construction of an idea to the pursuit of an emerging

opportunity through phases of interpretation, integration, institutionalizing and intertwining with key partners and stakeholders.

Entrepreneurial performance

Studying the relationship between the learning, enterprising individual and firm performance represents several challenges. First of all, before addressing this relationship it is important to realize that the majority of small firms tend to stay at a relatively stable level of operation after the founding phase. This does not necessarily indicate a lack of competence. Although there are only a few specific (longitudinal) studies that address this point, literature suggests that the relationship between competence and performance is influenced by other variables such as goals, self-efficacy, passion and vision of the owner-manager (Baum & Locke, 2004). Studies in agriculture also report the importance of situation-specific motivations of owner-managers in relation to firm performance (Bergevoet et al., 2004; Gorton et al., 2008). Furthermore, the notion of firm performance in itself is disputable, since a performance advantage (e.g. size) over other firms is not a measure of entrepreneurial performance per se (Shane & Venkataraman, 2000). Murphy et al. (1996) provide a systematic overview of performance dimensions and measures used in entrepreneurship literature. By reviewing 71 dimensions that were used to map performance, they concluded that research at that time lacked justification for the selection of certain dimensions and that only in a few cases were more than one or two dimensions used. When investigating entrepreneurial competence at the individual level, it is important to use comparable performance constructs at the firm level. Davidsson (2007) therefore argues that it is key to distinguish between venture performance, i.e. financial performance such as net income, and entrepreneurial performance. What is regarded as entrepreneurial performance at the firm level depends on the definition of entrepreneurship that is used. Probably the most straightforward way to capture entrepreneurial performance is by using a dichotomy of firm start-up versus no firm start-up. As stated in the introduction, this article takes a process definition of entrepreneurship. This means that entrepreneurial performance indicators other than dichotomous operational definitions should be used. Many authors contend that firm growth is, at least to some extent, an aspect of entrepreneurship (Davidsson et al., 2005). Just as starting or not starting a firm is considered to be entrepreneurial, striving for growth is also considered to be more entrepreneurial than remaining stable over time, since growth will increase the firm's complexity over time. Growth is thus more than an increase in sales for a short period; it reflects a longer time period in which aspects such as assets and employees are extended (Davidsson et al., 2005). However, growth can be realized in different ways, not all of which are necessarily entrepreneurial. Referring to the earlier definition which included entrepreneurial opportunities, growth is also associated with newness or innovation. Entrepreneurial opportunities differ from normal possibilities to optimize the efficiency of existing products in the sense that the former involves new means-ends relationships (Shane & Venkataraman, 2000). The mere obtainment of a milk quota or the acquisition of additional greenhouses which are already

up and running are therefore in this study not considered as entrepreneurial growth.

To sum up, the described extended notions of the enterprising individual (i.e. entrepreneurial competence and its development) are presumed to be related to the outlined conceptions of entrepreneurial performance on the firm level. There is a need to disentangle those relationships more precisely, since studies at present have either paid little attention to task-specificity of entrepreneurial inputs, the dynamics associated with the opportunity process or to adequate performance measures that really capture entrepreneurial endeavours on the small firm level. Accordingly, our specific research question was: How do high- and low-performing small agricultural firms differ in terms of the extent to which their owner-managers *develop* and *use* specific entrepreneurial competence?

Methods

The current study was situated in a primary production sector well known for its innovative strength: greenhouse horticulture in the Netherlands. It is a major global player that does not receive any significant support from the European Common Agricultural Policy (CAP). A multiple-source case study approach was employed in which data sets from various sources were combined and various triangulation methods were used (Denzin, 1990). A multiple-source case study approach like this is preferred above a single-source approach since competence and competence development draw heavily on introspection and retrospection, and self-reported data on competence can be influenced by hindsight bias among respondents, social desirability of certain answers and other biases (Bernard, 2006). Concerning entrepreneurial performance, an in-depth approach is also desirable, since growth and innovation indicators are often not easily measured.

Case selection

The cases used in this study were derived from a sample of Dutch greenhouse horticultural firms included in the Farm Accountancy Data Network and Innovation Monitor of the Agricultural Economics Research Institute (LEI) in the Netherlands. Annual data from a panel of greenhouse firms for the period 2004-2007 were used. The original sample consisted of 249 firms. This is a representative sample of the greenhouse horticulture sector in the Netherlands.

To select a purposeful sub-sample for this study, several steps were taken. First of all the different sources of income were considered. In some cases, income generated outside the business was larger than income generated within the (registered) firm itself. The firms for which the ratio of total income generated outside the business divided by the income from the greenhouse firm was larger than .05 were excluded from the sample.

Furthermore, it was assumed that the larger a board of directors is, the more difficult it will be to link performance results to a particular owner's entrepreneurial competence (development). The cases with more than two owner-managers were therefore also excluded from the sample.

Finally, the averages of two financial performance indicators, namely net profit margin (ratio) and revenue/costs ratio, were calculated for each year for the years 2004 until 2007. Based on these averages, businesses that continuously under- or overperformed compared to the sample mean for the years 2004-2007 were selected. This resulted in a set of 65 firms. From this final sample, 19 owner-managers were willing to participate in the study. The other 46 firms did not participate because they were not interested, had no time, or, in the case of six firms, because they were bankrupt at the time of the interviews.

Assessing entrepreneurial competence and its development

The sample of 19 firms contained consistent financial over- and underperformers. All firms were visited and interviewed in the summer of 2008. The interviewer did not know beforehand whether a firm was over- or underperforming. Interviews with the owner-managers were semi-structured and took about 1.5 hours. In the interviews individual entrepreneurial competence as well as perceived competence development were first rated quantitatively by the owner-managers in a questionnaire. Afterwards, the answers the owner-managers gave were discussed with the interviewer in detail. Discussion was needed in order for the owner-managers to put their answers into perspective and to provide more background information where necessary.

The questions about entrepreneurial competence were designed in accordance with the model presented in Chapter 3. This model describes three competence domains, which explained almost 40 percent of the variation from a wide variety of entrepreneurial competencies measured among 348 farmers. These three domains were elaborated in the current study based on organizational learning theory and additional research on competence in entrepreneurship.

In line with the presumption that competencies are latent constructs (Mulder, 2001), task-related activities may function as a unit-of-analysis for competencies in a questionnaire. Although activities are only possible demonstrations of competence, they present a more fine-grained measure of competence than crude human capital measures or de-contextualized ability scales. Moreover, the advantage of focusing on the actual activities of owner-managers is that they are recognizable for the interviewee and quantifiable. Of course the downside of focusing on activities is that the researcher will tend to only look at overt behaviour and pay less attention to (underlying) cognitive, emotional processes and personal beliefs. To overcome this, thinking activities were also included. See Table 4.1 for an overview.

Since these activities are difficult to 'count', soft quantifiers were used as scales. Twenty-six specific questions were formulated and guided the competence and competence development data collection. The 26 questions described concrete situations, which were associated with the nine discerned activities that demonstrate competence.

Every activity contained two to four distinct situations. The questions consisted of two

Table 4.1 Overview of the competence domains studied, with the related activities which were measured

Original domain	Related activities which demonstrate competence	Corresponding author(s)
Analysing	Analysis of alternative situations Evaluation of opportunity	Detienne & Chandler (2004); Mitchell et al. (2000); Zietsma et al. (2002); Jones & Macpherson (2006)
Networking	Contact with alternative views Assessing what others find important Integration of others' ideas Using inter-organizational relationships	Baron & Markman (2003); Jones & Macpherson (2006)
Pursuing	Active search Experimentation Implementation	Mitchell et al. (2000); Markman & Baron (2003); Zietsma et al., (2002); Jones & Macpherson (2006)

parts i) how often the owner-managers carry out this activity at present, and ii) the perceived increase/decrease in how often they carry out this activity compared to five years earlier (development). The soft quantifier scales ranged from 1 = never to 5 = always (for the first part of each question) and 1 = significantly less often than five years ago to 5 = significantly more often than five years ago (for the second part of each question). To focus the interviews specifically on the process of opportunity identification and pursuit, all nine activities with their underlying questions were briefly introduced (i.e. framed) before the owner-manager started answering the questions. As described earlier, the answers the owner-managers gave were discussed after completion of the questionnaire in order to put them into perspective and elaborate on certain (salient) answers.

Finally, to position our competence data in the light of the owner-managers' strategies and ambitions over time (2004-2007), two additional variables from the Innovation Monitor were included, namely, the owner-managers' confidence in the future (little... much in the period 2004-2007), and the owner-managers' innovation goals, which were rated in 2005 based on a selection of common business goals.

Assessing entrepreneurial performance at the firm level

Four variables that fit our definition of entrepreneurial performance were retrieved from the Farm Accountancy Data Network and the Innovation Monitor for the 2004-2007 period. These variables were:

1. Physical growth of the firm, seen as the expansion of the business in square metres measured as a dichotomous variable (yes/no);
2. Investments in new greenhouses, installations and machinery measured in euros;
3. Modernity of greenhouse, installations and machinery, measured as the

book value divided by the replacement value in euros;

4. Introduction of product, process and organizational innovations, measured as a yes/no question including a description of the innovation.

The final grouping of the firms in the sub-sample under the label ‘high’ or ‘low’ entrepreneurial performance was based on the aggregation of these four outcome variables. To ensure confidentiality, fictitious names as well as standardized values for the second and third performance variables will be presented in our tables.

Results

Competence, competence development and performance

Table 4.2 presents the individual level data collected by means of the Innovation Monitor and the competence questionnaire.

Table 4.2 Confidence (2004-2007), innovation goals (2005), education, competence and competence development

Firm	Confidence	Innovation goals ^a	EDU	EC ^b	ECD ^c
Taiga	Ambivalent	3,4,9,10,11	I _{VET}	0.77	1.00
Roma	Ambivalent	3,6,10	L _{VET}	0.76	1.38
Ferrari	Much	no clear prioritizing	L _{VET}	0.75	1.28
Armada	Much	3	I _{VET}	0.75	1.26
Orchid	Much	3,5	L _{VET} ¹	0.74	1.19
Focoso	Ambivalent	2,7,9,10,11	I _{VET}	0.72	1.18
Consumo	Much	3	I _{VET}	0.72	1.04
Littleton	Much	3,9	I _{VET}	0.71	1.22
Solanum	Ambivalent	no data available	I _{VET}	0.71	1.12
Cherry	Much	no clear prioritizing	I _{VET}	0.69	1.27
Creamist	Much	no clear prioritizing	I _{VET}	0.68	1.15
Fantasy	Ambivalent	no clear prioritizing	L _{VET}	0.68	1.09
Venice	Much	8,11	H _{VET}	0.66	1.14
Daisy	Much	3,6	I _{VET} ¹	0.65	1.18
Fellowship	Little	no clear prioritizing	I _{VET} ¹	0.65	1.03
Grewia	Little	3	L _{VET} ¹	0.63	1.09
Bonaparte	Little	9,10,11	L _{VET}	0.59	1.13
Warmia	Little	1,3	I _{VET}	0.53	1.13
Cytisus	Little	no clear prioritizing	L _{VET} ¹	0.52	1.08

Note. The firms are sorted on the entrepreneurial competence (EC) scores (high-low).

^aThe following goals were discerned: (1) optimizing chains, (2) growth, (3) cost reduction, (4) quality improvement, (5) new products, (6) new markets, (7) access to new knowledge, (8) comply with regulations, (9) environmental strategies, (10) improved labour conditions, (11) product safety. L_{VET} = lower vocational education, I_{VET} = intermediate vocational education, H_{VET} = higher vocational education. ¹ Not sector-specific education. ^b EC = frequency of carrying out activities, displayed as a fraction of the maximum frequency possible (i.e. if all questions would get the maximum score of 5, always). ^c ECD = increase/decrease of carrying out the activities over the last five years. Scores above 1 represent an increase, scores below 1, a decrease.

Almost half of the cases opted for a cost-reduction strategy, and one-third did not have a clear prioritization of the discerned innovation goals. The firms Roma, Orchid, Focoso and Daisy mentioned growth- or innovation-related goals. The scores on the competence questions indicate that none of the owner-managers was always active in all the discerned domains (which would imply a score of 1). Most active were Taiga, Roma, Ferrari and Armada (0.75 or more). The owner-managers who, according to their own assessment, were least active are Warmia and Cytisus (around 0.50). Furthermore, the competence data shows that all but one (Taiga) of the cases reported an increased of entrepreneurial competence.

Only three firms performed consistently high on the aggregate of the four entrepreneurial performance measures (Table 4.3). The owners of the firms Daisy, Armada and Roma

Table 4.3 Overview of entrepreneurial performance variables of the nineteen cases for the period 2004-2007

Firm	Gr ^a	Inv ^b	Mod ^c	Introduction of innovations		
				Process	Product	Organizing
Armada	Yes	28.11	0.24	Advanced processing line	n.a.	n.a.
Daisy	Yes	21.72	0.33	Planting robot	n.a.	New market channel
Roma	Yes	18.33	0.33	n.a.	New cultivar	Global G.A.P. certification
Ferrari	¹	12.29	-0.06	n.a.	n.a.	n.a.
Solanum	¹	8.6	0.39	n.a.	n.a.	n.a.
Venice	¹	-2.59	0.2	n.a.	n.a.	n.a.
Consumo	No	18.54	0.06	n.a.	n.a.	n.a.
Bonaparte	No	3.71	0.26	n.a.	n.a.	n.a.
Littleton	No	1.4	-0.19	n.a.	n.a.	n.a.
Taiga	No	0.79	0.11	n.a.	New cultivar	n.a.
Creamist	No	-0.2	-0.06	n.a.	New cultivar	n.a.
Cherry	No	-2.24	-0.13	Planting robot	n.a.	n.a.
Fellowship	No	-2.31	-0.2	n.a.	n.a.	n.a.
Fantasy	No	-2.48	0.06	n.a.	n.a.	n.a.
Orchid	No	-2.56	0.02	n.a.	n.a.	n.a.
Grewia	No	-3.16	-0.15	n.a.	n.a.	n.a.
Warmia	No	-3.44	-0.26	n.a.	n.a.	n.a.
Focoso	No	-3.52	0.06	n.a.	n.a.	n.a.
Cytisus	No	-3.69	-0.35	n.a.	n.a.	n.a.
Mean sector		€493,82	0.35			

Note. All data were calculated for the period 2004-2007. n.a. = not applicable.

¹ These companies expanded their businesses in 2008, which was not within the period covered by the survey.

^a Growth of the firm is the expansion of the business in terms of m². ^b Standardized investment values for the total investment in new buildings, greenhouses and technology (installations and machinery). ^c Standardized modernity value, which is the fixed capital book value / replacement value for new buildings, greenhouses and technology (installations and machinery).

expanded their businesses in the investigated period, invested heavily over these years in their firms (high, positive investment values), had modern firms compared to the sector average (high, positive modernity values) and introduced in this period new processes, products or new ways of organizing. At the other extreme are the firms Warmia, Cytisus and Grewia, which did not grow in 2004-2007, invested very little in this period (low, negative investment values), were relatively old firms (low, decreasing modernity values) and did not innovate. The other firms seem to be somewhat in the middle of these extremes. Focoso is in this respect a bit of an outsider, since it scored low on the investments (negative, low investment value), but around average on modernity (a value close to zero).

Simple statistical analysis (through combining data from Table 4.2 with 4.3) illustrates a positive, significant, correlation between entrepreneurial competence (EC) and standardized investment values (Inv) ($r_s = .49, p < .05$) and between EC and standardized modernity values (Mod) ($r = .47, p < .05$), and between entrepreneurial competence development (ECD) and growth ($r_{pb} = .46, p < .05$). In order to maximize potential differences in competence, competence development and entrepreneurial performance, the three most consistently high-performing (Armada, Daisy and Roma) and low-performing (Warmia, Cytisus and Grewia) firms were investigated in more depth. As an additional source, the qualitative interviews that were held were also consulted. These results will be presented in the following sections.

Propositions specifying the underlying relationships

Table 4.4 displays the six selected owner-managers' 'current' performance of the nine activities as reported at the time of the interviews. One or more plusses per activity means the owner-manager frequently carried out this activity in one or more situations. If an activity was never, or hardly ever, carried out, the cell displays 'not applicable'.

Table 4.5 displays the increase/decrease of entrepreneurial competence, again according to the owner-managers' reporting of the nine discerned activities. One or more plusses in this table refers to an increased frequency of this activity in one or more situations. If an activity was not carried out more frequently than five years earlier, the cell displays 'not applicable'.

From the results presented in Tables 4.4 and 4.5 and the interviews, three typical patterns became clear, which are described separately in the following sections. In addition, propositions which relate to the research question are derived from these tables and the performance data presented earlier.

Similarities and differences

'Generic' competence research proposes a division between basic, or threshold, competencies and competencies that discern average from high performers (Bird, 1995). Indeed, the pattern in Table 4.4 suggests that some competence-related activities are carried out frequently in both high- and low-performing firms. Activities 2-5 and 8 are carried out frequently in all six firms and are also applied in various situations by

Table 4.4 Demonstration of entrepreneurial competence for high and low performers

	D ^a	Activities which demonstrate competence	High performers			Low performers		
			Daisy	Armada	Roma	Warmia	Cytisus	Grewia
1	A	Analysis of alternative situations	n.a.	++	++	+	n.a.	n.a.
2	A	Evaluation of opportunity	+++	+++	+++	+++	++	++
3	N	Contact with alternative views	+	++	+	+	+	++
4	N	Assessing what others find important	++	+	++	++	+++	++
5	N	Integration of others' ideas	++	++	+++	++	+	+++
6	N	Using inter-organizational relationships	+	++	+++	n.a.	n.a.	++
7	P	Active search	+	n.a.	+	n.a.	n.a.	n.a.
8	P	Experimentation	++	++	+++	+	+	+
9	P	Implementation	n.a.	n.a.	n.a.	n.a.	+	n.a.

Note. ^a D = The underlying competence domain (A = analysing, N = networking, P = pursuing).

+ = This activity was carried out frequently in 1(+), 2(++), or 3(+++) situations. N.a. (not applicable) = this activity is never or seldom carried out.

Table 4.5 Development of entrepreneurial competence for high and low performers

	D ^a	Activities which demonstrate competence	High performers			Low performers		
			Daisy	Armada	Roma	Warmia	Cytisus	Grewia
1	A	Analysis of alternative situations	+++	+++	++	++	+	n.a.
2	A	Evaluation of opportunity	n.a.	++	+++	n.a.	+	++
3	N	Contact with alternative views	++	++	+++	n.a.	n.a.	n.a.
4	N	Assessing what others find important	++	+	+++	++	n.a.	n.a.
5	N	Integration of others' ideas	++	++	+	++	n.a.	++
6	N	Using inter-organizational relationships	+++	+	+++	n.a.	n.a.	+
7	P	Active search	n.a.	+	++	n.a.	n.a.	n.a.
8	P	Experimentation	n.a.	++	++	+	+	+
9	P	Implementation	n.a.	++	++	+	n.a.	n.a.

Note. ^a D = The underlying competence domain (A = analysing, N = networking, P = pursuing).

+ = This activity was carried out more frequently than five years earlier in 1(+), 2(++), or 3(+++) situations. N.a. (not applicable) = no increase or decrease in frequency of this activity.

all the owner-managers. In contrast, activities 1, 6 and 7 are more often and broadly carried out in high-performing firms and hardly acted upon in low-performing firms. This suggests that some activities are ‘basic’ for running a business in horticulture, and some are more ‘distinctive’ for high entrepreneurial performance in particular, leading to the first proposition:

P1a The relationship between entrepreneurial competence and entrepreneurial performance is determined by how frequently owner-managers carry out ‘distinctive’ competence-related activities.

The qualitative interviews provided several important insights into some of the competence-related activities labelled as ‘basic’. First, the criteria used by the owner-managers to evaluate a potential business opportunity (activity 2) differ between high and low performers. The owner-manager of Cytisus indicated that he evaluated entrepreneurial opportunities based on whether they would fit into his present strategy (which was to ‘wait-and-see’). Similarly, the present strategy of Grewia’s owner-manager is to gradually scale down the business and then sell it. In the high-performing firms, the criteria used to assess entrepreneurial opportunities focus on increasing profitability (Daisy, Armada) and creating added value for the customer (Roma). So, although both groups of owner-managers indicated that they frequently evaluate business opportunities, their evaluative frameworks differ. This suggests a more nuanced picture with respect to the impact of these activities:

P1b The extent to which specific competence-related activities contribute to entrepreneurial performance is influenced by the owner-managers’ business goals.

High and low performers also differed with respect to the level of detail in which they were able to explain why they gave a particular answer to a question in the questionnaire. Some elaborated particularly well on the activities that involved social perception and adaptability (activities 4 and 5). For instance, the owner-manager of Roma explained that integrating the ideas of others in your ideas (activity 5) and assessing what others find important (activity 4) are not straightforward processes. This owner-manager tries to find a balance between integrating some ideas and at the same time not being too sensitive about the opinions of others. The owner-managers of Daisy and Armada gave similar explanations as to why they performed these activities more or less frequently, adding that more was not always better. In general, they all described a conscious employment of certain activities which demonstrate competence. This consciousness entailed being aware of specific situations as well as their own role in those settings. This leads to proposition 1c:

P1c The extent to which specific competence-related activities contribute to entrepreneurial performance is influenced by the owner-managers’ awareness of the underlying processes (i.e. competence awareness).

Sustaining an opportunity focus

Successful entrepreneurs continuously link the present to the future (Bird, 1995). Whether opportunities are considered as objective, waiting to be discovered, or constructed more or less actively by the individual, it is assumed that successful entrepreneurs spend more time thinking about the future and more actively scan the informational environment (Dyer et al., 2008; Ucbasaran et al., 2008). These notions are reflected in the performance of activities which mark the first steps in identifying opportunities (intuiting and interpreting), namely active search for opportunities (activity 7), analysis of other (non-horticultural) situations (activity 1) and being in contact with those who have alternative views (activity 3). Table 4.5 shows that the owner-managers of the high-performing firms have become more active in at least two of these three activities, showing the biggest contrast between high- and low-performing firms for activity 3. None of the owner-managers of the low-performing firms mentioned that they had searched more actively in the past five years for new opportunities or increased their contact with people who have alternative views such as chain partners and people outside the sector. The owner-managers of the low-performing firms Cytisus and Warmia reported increased analysis of alternative situations only. However, contrary to the high-performing firms, this increased alertness was limited to situations within their national boundaries. These results thus point to the following propositions:

P2a Entrepreneurial performance is correlated with the development of competence associated with the first phase of the identification and pursuit of an opportunity.

P2b The relationship between entrepreneurial performance and development of competence associated with the first phase of the identification and pursuit of an opportunity can be explained specifically by an increase in contacts with people who have alternative views, and partly by an increase in active search and analysis of specific other situations.

Developmental relatedness

Tables 4.4 and 4.5 demonstrate a relation between present competence and competence development. The Mathew effect, ‘those who have more will get more’, seems to be applicable here: the high-performing firms scored higher on present activity for all the competencies, and reported a larger increase in activity of all the competencies compared to five years earlier.

P3a The development of entrepreneurial competence is positively related to entrepreneurial competence, suggesting a self-reinforcing mechanism (horizontal development).

More in detail, when reading Table 4.5 vertically for every case, it can be seen that the high-performing firms (especially Armada and Roma) invest in the complete range

of activities. It appeared in the interviews that the expansion of contacts with new networks (reflected in activities 3 and 6) provided an important medium for generating, as well as implementing, entrepreneurial ideas.

In the low-performing companies this input and output was lacking. The company Grewia illustrates this phenomenon quite well. Although Grewia's owner-manager is very active in terms of networking and interacting with other growers, suppliers, buyers and other chain partners (see Table 4.4), he explained that the pool of people he visits and who visit his company has not changed in the last five to ten years (see Table 4.5). He thus has a fairly stable network, which he believes ensures continuity. So, although Grewia's owner-manager is quite active in networking and interacting, high-quality ideas (in terms of newness and innovativeness) are not brought into his network.

Cytisus' owner-manager similarly explained that his network consists mostly of other like-minded growers, preferably from his own region. As he explained, he is rarely in contact with non-growers, such as officials from local governments. This seems to be a deliberate choice, since he is only interested in producing for a very small, specific, regional market. Warmia's owner-manager also reported that he is very passive in expanding his business network to include 'non-growers', since he does not see any added value in doing that. Only the owner-manager of Daisy does not fit this profile completely. In the interview with this grower it appeared that his business grew rapidly and that during the previous five years he was also involved in starting additional activities in the transportation company he founded in the 1990s. This is reflected in the increase of activities 3 and 6 (Table 4.5). In fact both companies were becoming too large to be managed by a single owner-manager, which forced him to make decisions concerning what activities to spend time on. He chose to 'stay alert' rather than actively search for new opportunities. Thus, when possible, high-performing firms, contrary to low-performing firms, seem to invest in the complete range of activities in which networking seems to play a pivotal role. This leads to the following proposition:

P3b Carrying out competence-related activities which encompass engagement in new networks enables the development of adjacent competence domains (vertical development).

Discussion and conclusions

The relationships between entrepreneurial competence, its development and entrepreneurial performance in small firms represent an area which has fascinated researchers for decades. Recent studies seem to acknowledge the importance of moving towards more sophisticated views on human capital that make it possible to consider the situational, complex and idiosyncratic nature of competence development in small firms (Macpherson & Holt, 2007). Identifying such linkages is important for agricultural research and practice. Making farmers more entrepreneurial will, according to policy makers and researchers, lead to more effective responses to developments such as globalization and the reform of the EU's common agricultural policy.

In answer to our initial research question, *How do high- and low-performing small agricultural firms differ in terms of the extent to which their owner-managers develop and use specific entrepreneurial competence?*, we can say that considerable differences were found with respect to the use and development of entrepreneurial competence by the owner-managers studied. Experiences in other (unpublished) studies have taught us that these results are not unique to this particular sample. In the agricultural sector as a whole, some owner-managers seem to be more actively involved in innovation, diversification or growth of their firms than their colleagues. Such activities will help these owner-managers differentiate their firms from others in the same sector. The cases studied in this research support the conclusion of earlier studies in other sectors (Baum et al., 2001; Chandler & Jansen, 1992) that entrepreneurial performance at firm level is related to entrepreneurial competence. Furthermore, the cases suggest a correlation between entrepreneurial competence development and growth of the business. However, since the sample is too small for robust statistical analyses, the real added value of this study lies in the further conjectures that the relationships between competence, its development and firm performance are not straightforward, but seem to be influenced by other factors that should be considered.

Based on differences between over- and underperforming firms, seven propositions were derived that further specify the relationship between entrepreneurial performance, competence and competence development in small agricultural firms. The results indicate that the relationship between entrepreneurial competence and entrepreneurial performance is determined by how frequently owner-managers carry out 'distinctive' competence-related activities (Proposition 1a). The extent to which specific competence-related activities contribute to entrepreneurial performance is influenced by the owner-managers' business goals (Proposition 1b) as well as by the owner-managers' competence awareness (Proposition 1c). Moreover, there seems to be a relationship between entrepreneurial performance and competence development. It is proposed that entrepreneurial performance is correlated with competence development associated with the first phase of the identification and pursuit of an opportunity (Proposition 2a), which can be explained by an increase in contact with people who have alternative views and partly to an increase in active search and the analysis of specific other situations (Proposition 2b). Furthermore, the results suggest interdependence between competence and competence development (Proposition 3a). Active participation in activities that encompass engagement in new networks enables the development of adjacent competence domains (Proposition 3b). Figure 4.1 provides an overview of the propositions.

Suggestions for further research and limitations

It would be interesting to study the outlined propositions on a longitudinal, more quantitative basis. The initial sample of 248 firms, which was used to come to a more stratified sub-sample, could serve as a starting point for such a study. An interesting venue for additional research is the inclusion of agricultural firms managed by a team,

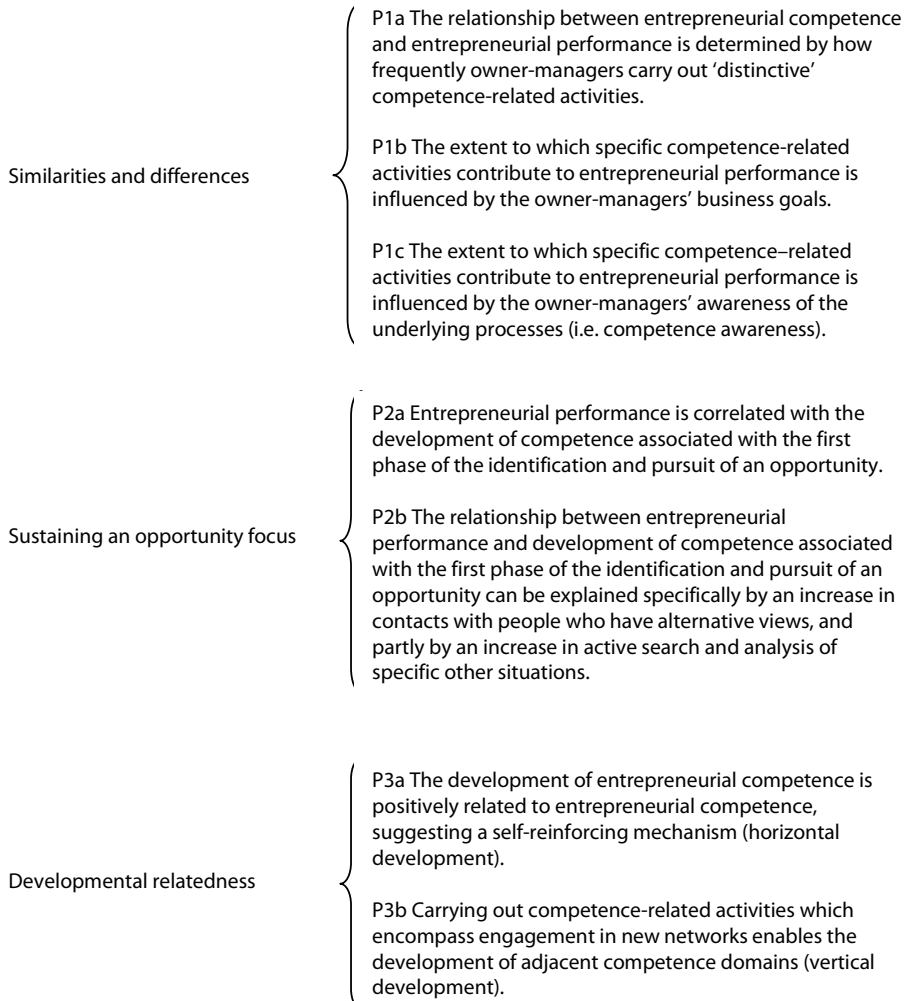


Figure 4.1 Proposed refinements of the relationships between entrepreneurial performance, entrepreneurial competence and competence development.

a phenomenon which most likely will be seen more often in the future due to the steady increase in firm size. Management teams in horticulture typically consist of family members (e.g. brothers, farther and sons), which represent special networks with very delicate sets of values, cultures and complexities that come into the workplace.

The study as it has been carried out is not meant to be conclusive. As competence and its development are by definition context dependent, there will be other variables that influence the competence development process. Nevertheless, the findings point towards variables that were also mentioned in research carried out in other sectors. For

instance, the mediating effect of business goals and awareness (Proposition 1b/c), the importance of sustaining an opportunity focus (Propositions 2a/b) and the interesting role the networking competence domain seems to have in relation to other competence domains (Proposition 3b).

The first point is partly confirmed quantitative by a study by Baum & Locke (2004) who showed that entrepreneurial competence had an indirect effect on venture growth, mediated by goals, self-efficacy and communicated vision. Nevertheless the potential effect of competence awareness for some competence domains is new.

The second point, sustaining an opportunity focus, has also been suggested in recent work of Dyer et al. (2008) who compared behavioural patterns of innovative entrepreneurs and executives from a wide range of industries. They concluded that innovative entrepreneurs were more likely to ask questions that challenged the status-quo (rather than optimizing existing processes) and were more active in creating networks of people with diverse ideas and insights.

The third point, the networking point, was recently raised by the work of Baron and Tang (2009). In their study on social competence in relation to new venture performance, they conclude that the mechanism behind the positive relationship they found was two-fold. Social competence facilitates the generation of novel ideas as well as access to necessary resources to further exploit an opportunity (Baron & Tang, 2009).

Furthermore, the propositions draw attention to an issue which is very difficult to resolve, namely the nature of the causality between business situation, competence and competence development, which was also addressed in the work of Chandler and Jansen (1992) and Baum and colleagues (2004). The question remains whether it is the business situation that allows for the expression and development of competencies or it is the set of competencies that together shape the business.

What is challenging in studies like these is the reliance on self-reported data. There was no $t=0$ measurement of entrepreneurial competence. This problem was addressed in several ways. Since we were interested in 'within-person' growth (related to the business performance of that specific business), it was important that the owner-managers compared their current activities with those of five years earlier. Five years seems to be a reasonable time frame for competence development, as well as a time frame which is still relatively easy to recall and reflect on. To focus, we addressed one aspect of entrepreneurial competence at a time. Moreover, clarifying and elaborating questions were asked if necessary. Finally, we were able to cross-check the answers with longitudinal data from the Innovation Monitor (which contained information about changes in goals and attitudes). Therefore, we were able to draw a quite accurate picture.

Another interesting issue in this type of study is improvability. Research in other settings suggests differences between competence domains (Maurer et al., 2003b). There are

some authors who suggest that certain aspects that shape social competence (e.g. the ability to perceive others accurately, social adaptability) are in fact not so much subject to development, but remain quite stable over time (Baron & Tang, 2009). Research on the development of entrepreneurial expertise explicitly addresses such issues in studies on serial and portfolio entrepreneurs (who start two or more businesses). This approach has gained popularity and has resulted in interesting advancements in particular on entrepreneurial thinking. It could be adopted in agriculture by studying multifunctional agriculture (portfolio entrepreneurship) or internationalization (serial entrepreneurship).

Implications for agricultural practice

The results have interesting implications for agricultural practice, in particular for those involved in sector development (e.g. business consultancy, innovation brokers, training and development). First of all, deliberate investment in entrepreneurial competence is a worthwhile journey. Second, we propose that entrepreneurial competence development is related to clear, entrepreneurial goals and competence awareness. Both items could be addressed more specifically in entrepreneurship programmes in agriculture. Finally, development of entrepreneurial competence seems to be dependent on the interaction of owner-managers within a diversity of networks. This underlines the current emphasis in Dutch agriculture on all sorts of networking activities and institutions aimed at bridging various networks (Klerx & Leeuwis, 2008; Verstegen & DeLauwere, 2009; Wielinga & Vrolijk, 2009).

The influence of the work environment on entrepreneurial learning of small-business owners¹

Chapter 5 reports the results of the fourth and last study, which was designed to answer the fifth research question of this thesis.

Q5. Which factors in the work environment specifically contribute to the development of entrepreneurial competence?

This research question was further specified in this chapter as:
Which factors in the work environment of small businesses, as perceived by the owner-managers, contribute specifically to entrepreneurial learning?

¹ This chapter is based on: Lans, T., Biemans, H., Verstege, J., & Mulder, M. (2008). The influence of the work environment on entrepreneurial learning of small-business owners. *Management Learning*, 39(5), 597-613.



Abstract

Despite the widely acknowledged importance of entrepreneurial learning, research specifically addressing the question of *what fosters* this process is still in poor supply. In the present study entrepreneurial learning was conceptualized as a distinct type of work-related learning, emphasizing the role of the work environment in performing entrepreneurial tasks by owner-managers. A qualitative study was conducted among a specific sample of 25 small business owner-managers in an innovative, successful sector in the Netherlands: greenhouse horticulture. In-depth, semi-structured interviews were held focusing on critical incidents as they arose around a pursued business opportunity. Four factors were identified as being crucial in the entrepreneurial learning process, namely, support and guidance, external interaction, internal communication and task characteristics. Furthermore, the results show that different types of business opportunities present different dynamics for entrepreneurial learning. Finally, the results suggest a two-layered interaction between learner and work environment. Entrepreneurial learning of the owner-manager is influenced by the work environment, which is in turn shaped/defined by the owner-manager.

Introduction

Learning and the possibility to learn are at the heart of entrepreneurial processes: learning influences the opportunity recognition processes (Baron & Ensley, 2006; Dimov, 2007b; Hinrichs et al., 2004) and the development of competence, systems and cultures necessary to sustain innovative practices (Spicer & Sadler-Smith, 2006). Contemporary studies therefore suggest that studying the nature and conditions of learning in small businesses is essential to understanding how small firms innovate, survive and grow in dynamic environments that are characterized by changing consumer patterns, globalization, sustainability, and so on (Macpherson & Holt, 2007). The importance of entrepreneurial learning is clearly reflected in the increase in studies on the topic (Cope, 2005; Rae, 2006). However, despite this importance, research specifically addressing the question of *what fosters* entrepreneurial learning in small businesses is still in poor supply (Cope, 2003). Only some preliminary work in this area has been reported in the literature, mostly from a start-up point of view (Fenwick, 2003; Van Gelderen et al., 2005).

In this chapter we argue that entrepreneurial learning refers to a distinct class of work-related learning derived from the owner-manager performing entrepreneurial tasks and activities (i.e. the entrepreneurial role). Working and learning in this role are not only embedded in existing organizational processes. Instead, entrepreneurial learning means identifying and acting on opportunities (Rae, 2006), which implies that learning shapes direction, sets the tone of the overall business (Young & Sexton, 2003) and creates legitimacy (Aldrich & Fiol, 1994). It is characterized by direct responsibility and therefore risk, personal as well as judicial liability. Furthermore, it has a strong external orientation (Van Gelderen et al., 2005), it is independent of human resource departments, hierarchal structures and is not influenced by superiors in the organization (Young & Sexton, 2003).

To contribute to current understanding of entrepreneurial learning we looked particularly at the role the *work environment* plays in stimulating it. This focus originates from the notion of ‘the invitational character’ of work environments (in the broadest sense) in terms of fostering learning (Billett, 2002; Gibson, 1979). The research approach is rooted in the literature on work-related learning, which studies the learning embedded in the everyday work practices of professionals, emphasizing the work environment as an important learning site (Fenwick, 2006). The underlying assumption is that the learning potential of a specific work environment can be recognized, guided, and better exploited through analysing existing activities, processes and characteristics that currently shape the work environment. The research took place in small businesses in greenhouse horticulture, an innovative, growth-orientated and successful sector in the Netherlands. Although literature on work-related learning has a strong qualitative and quantitative research tradition in a wide range of sectors, its focus has been primarily on learning in non-entrepreneurial work settings like police stations, schools and factories (e.g. Doornbos, 2006; Eraut et al., 1998; Raemsdonck, 2006).

This chapter starts by unfurling the concept of entrepreneurial learning and continues to discuss the work-environment factors that influence entrepreneurial learning as they are central to this study. Subsequently, we describe the results of our study and the implications for future research and practice.

Entrepreneurial learning

The ‘entrepreneurial’ part in entrepreneurial learning suggests learning that is interrelated with entrepreneurship. As described in the first chapter, opportunity-related conceptualizations of entrepreneurship are attracting attention in entrepreneurship literature (e.g. Shane, 2003). In line with the discussion in Chapter 1, ‘entrepreneurial’ refers to the identification and pursuit of entrepreneurial opportunities, more specifically the iterative process of searching, shaping and evaluating initial ideas in dialogue with the social environment (including employees, competitors, network and chain partners) leading eventually to the actual realization of a concrete business opportunity. We define therefore entrepreneurial learning as learning connected to this specific process (Corbett, 2005; Rae, 2006).

In the present body of entrepreneurship literature, the issue of entrepreneurial learning has been theorized predominantly in models drawn from (reflective) experiential learning (building further on the work of Kolb, 1984), emphasizing the importance of a reflective individual (Clarke et al., 2006), the significance of critical incidents (Cope & Watts, 2000) and the importance of individual action and learning strategies (Corbett, 2005; Mulder et al., 2007). This makes sense since entrepreneurial learning takes place in everyday experiences, in the contexts and activities of work. Although we do agree that it is important to study individual characteristics in researching entrepreneurial learning, entrepreneurial learning is also influenced by the strong relationship

between the learner and the work environment (e.g. the business, Cope, 2003). What seems to be key here is that learning is not only embedded in existing organizational processes but rather entails shaping (or reshaping) the work environment, gaining legitimacy, acquiring and exploiting resources (Aldrich & Fiol, 1994). What is more, entrepreneurial learning takes place without the direct influence of human-resource-driven objectives or superiors (Young & Sexton, 2003) and involves relatively high levels of risk and uncertainty (Gibb, 2002) – characteristics which are, in general, not exemplary for the learning of managers or employees in large organizations (Fenwick, 2003).

Therefore, to further conceptualize, understand and possibly enrich the concept of entrepreneurial learning as it is brought into play in entrepreneurship and small business research, it is important to consider the broader work environment in which the learning takes place (Rae, 2006). As Fenwick clearly (2006) notes: contemporary research on work-related learning should also carefully consider aspects such as divisions of labour, power relations, environmental affordances, cultural disciplines and language. Investigating learning solely as an individual action of knowledge construction neglects the multiple dimensions of learning that are of interest and must be considered in order to fully understand and foster learning in workplaces (Fenwick, 2006; Illris, 2007; Macpherson & Holt, 2007; Rae, 2006).

Environmental factors influencing entrepreneurial learning

The described nature of entrepreneurial learning emphasizes the importance of the work environment as a learning space, simply because it is the most important environment these learners engage in and, moreover, typically the result of earlier decisions taken by the entrepreneur. It is reported frequently that education and training are rarely ‘engaged in’ by small business owner-managers (Ehrich & Billett, 2004; Lans et al., 2004).

Many different terms are used in the literature to refer to the work context as an important learning environment such as workplace learning, work-based learning, work-related learning and on-the-job learning. When talking about entrepreneurial learning, we prefer to use the term learning in a certain work *environment*, instead of terms like learning in ‘workplaces’ and ‘on-the-job’, because these might evoke a rather narrow, static, view of the entrepreneur’s workplace (e.g. only his physical workplace, the firm). With the term work environment we allude to the complete working and learning arena of the small business owner-manager, including, for instance, the supply chains and (peer) networks the owner-manager engages in.

As stated, work environments differ in the way they invite workers to learn. For instance studies about corporate entrepreneurship and organizational learning illustrate that work discretion (delegation and autonomy), time availability and flexible boundaries are antecedents for learning behaviour and entrepreneurial action (Hornsby et al., 2002; Maurer et al., 2003a; Yang et al., 2004). Research on work-environment factors that foster learning in general can roughly be divided in terms of the nature/

organization of the tasks, and cultural and social relations that characterize the work environment (Doornbos, 2006). Concrete examples of task-related factors that are frequently mentioned in the literature on managerial learning are, for instance, task novelty, freedom to innovate, responsibility and complexity (McCauley et al., 1994). The relation between the complexity of a task or job and the learning potential of the job has been studied quite extensively within the domain of work-related learning. There is, for instance, empirical evidence that task *variation*, task *autonomy*, work *pace* and growth *potential* are factors that influence learning (either measured in output or process) (Doornbos, 2006; Raemsdonck, 2006).

Furthermore, literature suggests that collegial availability (Doornbos, 2006), guided learning (Billett, 2003), possibilities for feedback, evaluation and reflection (Ellström, 2001), engagement with colleagues (Hinrichs et al., 2004) and availability of a mentor (Van Gelderen et al., 2005) provide direct possibilities in the work environment for learning. Kilpatrick and Johns (2003), for instance, found that the success of small farming firms in the development towards new markets depended, among other factors, on the level of interaction with other team members on the farm.

Although most of the studies focus on collegial support within the organization, the (learning) environment of the small business owner-manager also includes the external environment of the small business (Van Gelderen et al., 2005). Contacts with peers, professional bodies (e.g., unions, suppliers, buyers) and other stakeholders, as well as contacts with the neighbourhood, relatives and friends, all provide opportunities for learning (Lans et al., 2004; Skule, 2004). Skule (2004) also found that more exposure to demands from customers, buyer groups or supply-chain partners resulted in more learning. These types of interactions tend to be much more informal, more ad hoc and more implicit with respect to learning than the interactions in the guided-learning situation. From a network-theory perspective these interactions can be labelled as 'weak' links, which are known to be vital to the creation of new business opportunities (Elfring & Hulsink, 2003). Also from other industries there is empirical evidence that interaction with weak links fosters innovative learning. Hinrichs et al. (2004) found that work environments of small-farm holders that invited the owner-manager to engage with end users (i.e. consumers) resulted in more innovative practices than work environments that only invited the owner-manager to engage with colleagues.

Finally, organizational learning and corporate entrepreneurship theory suggests that organization structures might influence entrepreneurial learning (Crossan et al., 1999; Hornsby et al., 2002). Although Spicer and Sadler-Smith (2006) did not find direct support for this hypothesis in small businesses, research executed in larger organizations suggests that a highly developed communication structure within the organization promotes a favourable learning climate (Kessels, 2001). The work of Raemsdonck (2006) on the self-directed learning of lower-educated employees indicates that participation policy significantly enhances the self-directedness of the learners. In other words, a company policy that is characterized by high participation

Table 5.1 Examples of work environment factors mentioned by different authors that influence learning on the job

Nature of tasks		Cultural and social relations	
Transitions	McCauley et al. (1994)	Collegial availability	Doornbos (2006)/ Kilpatrick and Johns (2003)
Responsibility	McCauley et al. (1994)	Guidance	Billett (2003)
Authority	McCauley et al. (1994)	Engagement with colleagues	Hinrichs et al. (2004)
Variation	Doornbos (2006)	Engagement with customers	Hinrichs et al. (2004)
Autonomy	Doornbos (2006)	Demands from customers, group or chain partners	Skule (2004)
Work pace	Raemsdonck (2006)		
Growth potential	Raemsdonck (2006)		
Obstacles	McCauley et al. (1994)		

levels of workers (e.g. room for suggestions, asking each others' opinion, possibility to address problems directly) and decentralized management has a positive influence on the learning processes of individuals.

To sum up, exploring entrepreneurial learning in small businesses is mainly focused on the characteristics and learning activities of the individual (entrepreneur) learner. Although we do not challenge the importance of researching learning from this perspective, we argue in line with Rae (2006) and Macpherson and Holt (2007) that to gain better understanding of entrepreneurial learning in a small business it is important to consider the broader work environment in which the learning takes place. This requires a focus on tasks, cultural and social relations as well as possible (small business) organizational structures (as summarized in Table 5.1) that invite learning before, during and after the process of identifying and pursuing business opportunities.

Therefore, the following overarching research question leads this chapter:

Which factors in the work environment of small businesses, as perceived by the owner-managers, contribute specifically to entrepreneurial learning?

Methods

The agri-food sector

Since the focus of our study was on a specific sector, greenhouse horticulture, it is important to consider this specific work environment. Seven out of ten flowers that cross national borders world-wide originate from Dutch greenhouse horticulture (Van Kooten, 2005). The sector is, at present, dominated by fast growth, strong competition, innovations in logistics, energy-saving technology (e.g. 'underground

aquifer'), production and harvesting techniques (e.g. 'walking plant systems') and globalization (e.g. new companies in Spain, Ethiopia, Kenya and Uganda). The greenhouse horticulture sector is an international player that does not receive any significant support from the European Union's Common Agricultural Policy. Moreover, the 'flowers and food' sector was selected by the Dutch government as a key innovation area for the near future, and provides, therefore, a unique venue for researching entrepreneurial learning in small business. As stated in the first chapter, the advantage of researching a specific well-defined sector is that it minimizes the effects of external contextual factors beyond our scope, like economic, institutional, demographic and cultural factors on national level (Wennekers, 2006).

Participants

Dutch horticulture in heated glasshouses consists of two major groups: vegetables under glass and flower production, which together accounted for approximately 5600 businesses in 2006. Two-thirds of these enterprises are involved in flower production, and one third in vegetable production. The most active small businesses were recruited for this study, namely those run and controlled by the small business owner-managers who participated in the national committees of the Agriculture and Horticulture Organisations Netherlands (AHON) (LTO Groeiservice). There are about twenty of these committees (such as for cucumbers, peppers, tomatoes, pot plants, cut flowers) comprising about 200 members in total. These members are committed to their sector and represent their sector or subsector's interests in the national context. In addition, they are typically involved in policy-making, internationally oriented, and well informed about EU policy. In this study 25 of these small business owner-managers were interviewed. Consistent with the overall distribution, 17 flower companies (2/3) and 8 vegetable companies (1/3) were selected.

Instruments and procedures

In this study we used the same approach to investigate entrepreneurial learning as was used by Mulder et al. (2007). It is an approach that has its roots in the critical incidents technique (CIT), originally set forward by Flanagan (1954), and is used in a wide range of settings. It appears to have particular relevance in the field of work-related learning (e.g. Billett, 2000), but has also been applied in the field of entrepreneurship (Cope & Watts, 2000). In their research on entrepreneurial learning, Cope and Watts (2000) highlighted the importance of critical incidents in high-level learning related to entrepreneurial tasks and problems in the workplace. Billett (2000) emphasized the instrumental value of using critical incident interviews to get rich, grounded responses related to actual events and situations.

The interviews conducted for this study focused on the central aspects of entrepreneurship, i.e., the identification and pursuit of business opportunities. The starting point of the interviews was a business opportunity pursued by the small business owner-managers. Consequently, the owner-managers were asked specifically about critical incidents related

to this pursued business opportunity within their businesses.

The following questioning structure was adopted. Interviewees had to recall a business opportunity they had recently pursued. To focus on critical incidents in the process of the development of these business opportunities, the following questions were addressed:

1. Where did the idea for this business opportunity come from?
2. What went well and what went wrong in pursuing this business opportunity?
3. Looking back, who or what could have provided the necessary assistance to make the pursuit of this opportunity more successful?
4. What were the consequences of this business opportunity for the enterprise?

Furthermore we asked some basic background questions about the interviewees' education, age, prior work experience, experience outside their own businesses, and the size of their staff, since it is known that these variables can influence entrepreneurial behaviour in general (Shane, 2003).

Analysis

The interview transcriptions were analysed for themes using QSR-N6 software. The first step was clustering the business opportunities based on the early work of Schumpeter (Shane, 2003; Schumpeter, 1934). The 25 interviews were assigned to four 'types' of opportunities: new products, new methods of production, new (geographical) markets, and new ways of organizing business processes.

The second step was to analyse the 25 interviews with respect to the occurrence of a broad range of work-environment factors described in the literature (Table 5.1). The analysis of the work-environment factors resulted in eight initial clusters and 71 underlying items (i.e. specific features). The next step was to bring this set back to manageable units again. This was done on the basis of two criteria:

1. Factors that were incidental were left out of the final analysis. These included bankruptcy, clients that leave the business and price developments (e.g. gas prices). Although these factors may stimulate learning, they are difficult to influence.
2. Factors that were only mentioned a few times in very specific cases were left out, or aggregated at a higher level. An example was 'value for learning at work', which in the first instance appeared to be a separate category, but could be added to the category task characteristics (appreciation of the entrepreneurial task).

The final analysis resulted in four factors, with 35 underlying features. The results are described below.

Results

The average age of the owner-managers who were interviewed was 40 years with 17 years of work experience as owner-manager. They employed on average 7 workers (between 0 and 26), and almost two-thirds (64%) had work experience outside the sector of their current businesses. Among the business opportunities these owner-managers had recently pursued, new methods of production was the most common (mentioned in 13 of 25 interviews). These refer predominantly to the development of new (or second) businesses at new locations equipped with all the latest technologies, however usually focused on the same products. All of these new businesses were established less than five years before the interviews.

The category new markets represents a group of opportunities concerning the development of new markets and was a topic of discussion in five cases. Examples included the switch to the production of organic flowers, the development of new supply chain concepts to deliver to niche markets, or the formation of regional clusters to attract other buyers such as larger retailers, or garden centres.

New products refers to the development of new products such as a more exclusive, attractive or tasteful variety, or just a completely new product, which was the topic of the interview in four cases.

Finally, three cases were about new ways of organizing business processes, which comprise opportunities related to the development of new routines, usually within the existing businesses. This can encompass new ways of organizing labour, logistics (e.g. track and tracing systems) or transportation.

Work-environment factors

The content analysis of the data eventually resulted in four distinct work-environment factors. The most frequently mentioned factor was *support and guidance*. A sparring partner is crucial for entrepreneurial learning. In the interviews, internal as well as external support were discerned. Where internal support is provided by family, co-workers or business partners, external support comes from peers, coaches and so-called 'linking pins'. Table 5.2 provides an overview of the different types of support and the specific features of each mentioned by the small business owner-managers.

The second most frequently noted factor for learning appeared to be the extent of *external interaction*. This differs from external guidance and support in the sense that the learning objective of these interactions is less direct. Especially during the preliminary stages of business opportunity development, the small business owner-managers learn a lot from interaction with all sorts of stakeholders in their business environments. Table 5.3 presents, in more detail, the specific interactions that were said to contribute to entrepreneurial learning.

Obviously, external interaction with different stakeholders has different characteristics and these features do not necessarily have a positive influence on learning. For instance,

Table 5.2 Support and guidance (47%)*

Component	Features
Internal support	Critical co-worker(s), who think on the 'same level'
	Family that thinks together
	Business/sparring partner with financial interest in the company
External support	Personal coach
	Distinguished specialist
	(Temporary) study groups outside one's own sub-sector
	More experienced colleagues (role models)
	Competitors who are used as a reference point on which to base benchmarks
	Linking pins that bridge structural holes (e.g. salesmen, students)

* Percentage of the total number of elicited factors as recalled by the small business owner-managers.

Table 5.3 External interaction (24%)*

Component	Features
Interaction with traders/buyers	Direct, personal contacts
	Involvement
	Power
	Conflicts
	Room to manoeuvre
	Creation of win-win learning situations
	Openness (e.g. client behind the client)
	Diversity
Interaction with consumers	Access to 'overview' sources (people, media)
Interaction with suppliers	Trust
	Long-term relationships, maintaining contacts
	Collective activities (e.g. doing research)
	Room to manoeuvre
Interaction with experts	Access to the right sources (e.g. scientists)

* Percentage of the total number of elicited factors as recalled by the small business owner-managers.

conflicts with traders or buyers can influence learning positively (e.g. rethinking existing practices) and negatively (e.g. creating a non-productive environment for learning because of power and trust issues). Power, trust, reputation and reliability seem to be key here. For instance, in the case of organic flower production in heated greenhouses, the product was so new that the small business owner-manager had to interact continuously with extremely sceptical customers, creditors, suppliers and other external parties, which was very problematic in his learning process.

The third prominent factor in our data was *internal communication*. This concerns the communication structures within the company that foster entrepreneurial learning. In short, the workplace should invite employer and employees to interact with each other. The power of communication as a way to stimulate learning in the process of business opportunity development is especially poignant in businesses that have more permanent employees and are predominantly at the stage of opportunity exploitation and evaluation.

In some cases it appeared that the small business owner-manager was unable to close the 'gap' between his ideas and the work floor, which led to misunderstandings, high turnover of staff and production problems. In one particular case the owner-manager started a new second company with the same product, but with the aim of supplying to a new market, the British retail sector. Although the hardware was state-of-the-art, his staff was not prepared to produce for this particular market, which led to a temporary decrease in the quality of his product and its turnover.

Internal communication can be formalized and/or informal. Both are important but are not always present. Formal internal communication, such as regular team meetings, can stimulate internal learning, and lead to better involvement of others in the work environment and consequently in the learning process of the owner-manager. Informal communication moments, such as possibilities to give feedback to the business owner-manager, are also crucial. What was mentioned frequently in reference to this specific factor was the fact that many of these businesses employ foreign workers (e.g. from Poland or Turkey). Employers can either treat them as 'hired hands' or invest in them and benefit from them as a learning source (e.g. for working out ideas for a new business in their country of origin). Table 5.4 provides an overview of the underlying components and characteristics of internal communication.

The last factor elicited was labelled *task characteristics*. Entrepreneurial learning requires 'space' for learning and development in the entrepreneurial role, rather than in the craftsman and/or managerial role. Since these businesses are small, the owner-manager really has to create his/her own space to identify the business opportunity and exploit it in his/her organization.

Table 5.4 Internal communication (18%)*

Component	Features
Formal internal communication	Regular team meetings
	Clear, direct communication lines
	Transparency (internal/external)
Informal internal communication	Possibilities to ask/give feedback
	Attention to cultural differences
	Trust (see also external interaction)

* Percentage of the total number of elicited factors as recalled by the small business owner-managers.

Room to manoeuvre can be gained both formally (by transferring/delegating tasks to others, or by providing ‘learning money’) and informally (by creating a culture in which engaging in entrepreneurial tasks is also considered as ‘working’). See Table 5.5 for an overview.

Table 5.6 displays the distribution of the identified work-environment factors over the types of business opportunities. What becomes clear from Table 5.6 is that the most frequently named work-environment factor in all the types of opportunities was ‘support and guidance’. Furthermore, the relative perceived importance of external interaction as well as internal communication in particular varies between the different types of pursued business opportunities.

Furthermore, the results show many examples of the interaction between the different types of work-environment factors and the small business owner-managers. For instance, in one case, the business had many different products, which resulted in many external interactions with different suppliers, different buyers and end-users. In terms of external interaction this work environment scored high. However, the owner-manager used these external contacts only when there were problems, for instance in delivery or quality. Although the work environment provided many opportunities for getting external feedback as input for his entrepreneurial learning, the owner-manager

Table 5.5 Task characteristics (11%)*

Component	Features
Formal	Right people in the right place
	Transfer of tasks (flexibility in tasks)
	Possibility to specialize in tasks
	Available ‘learning money’
Informal	Appreciation for ‘entrepreneurial tasks’
	Available reflection moments

* Percentage of the total number of elicited factors as recalled by the small business owner-managers.

Table 5.6 Distribution of work-environment factors by types of business opportunities (n=25)*

	Support and guidance	External interaction	Internal communication	Task characteristics	Total
New methods of production	47% (58)	19% (24)	20% (25)	14% (17)	100%
New (geographical) markets	48% (19)	18% (7)	23% (9)	13% (5)	100%
New ways of organizing	50% (9)	33% (6)	11% (2)	6% (1)	100%
New products	46% (13)	46% (13)	4% (1)	4% (1)	100%
Total	47% (99)	24% (50)	18% (37)	11% (24)	100%

* Between brackets: absolute number of times the factor was recalled by the small business owner-managers.

did not exploit its possibilities simply because he was not aware of their potential. He did not benefit from this external network in terms of reflection; he did not ask what his external contacts thought of his business, whether they saw new developments within the markets, etc.

A second example illustrates that not utilizing favourable work-environment factors can also be a conscious choice. In one work environment the owner-manager deliberately, in his internal communication, avoided topics that had to do with the new strategy of the business. He did not ask for feedback on his ideas of expanding the business (he considered his staff unqualified to discuss these issues), thereby increasing the distance between his decision making and the processes taking place on the work floor. Eventually external parties assigned him a mentor (guidance and support) to help him close this gap and learn not only to recognize this business opportunity but also to exploit it.

A third example illustrates the power of the individual learner to shape and design the learning potential of his work environment. The small business owner-manager deliberately designed a focus group, consisting of end-users of his product, to bridge the gap between his own business and the end-users of his product. This focus group, consisting of housewives, met a few times a year at his business to discuss the colours in the new household trends. In this way, the owner-manager knew exactly where he should search for added value for his product the following year. Since he did not get this type of feedback from his direct buyers (traders), he bypassed them and initiated external interaction with end-users himself.

Discussion and conclusions

In this study we examined learning characteristics of the work environment that foster the core of entrepreneurial learning: the identification and pursuit of business opportunities. Concerning our central research question, four factors with underlying components and features were identified as being crucial to the entrepreneurial learning process, namely support and guidance, external interaction, internal communication and task characteristics. Although these four factors are also reported in management learning literature in large organizations (e.g. McCauley et al., 1994), they do show some features which might help the further theorizing of entrepreneurial learning.

Firstly, the role external interaction plays in learning is complex, due to the extreme heterogeneity of external environments (e.g. different stakeholders) and the uncertainty involved. External interaction seems to function as a double-edged sword. On the one hand, these external interactions provide new ideas either directly from customers or via buyers or traders. On the other, it is very difficult to engage these contacts further because of issues of power, trust and reliability. Why should these contacts 'trust' the small business owner-manager, and, conversely, how can a small business owner-manager be sure that a new idea proposed by an external contact will work out in a way that is beneficial for both parties?

Secondly, the results suggest that some internal communication structures are necessary to foster entrepreneurial learning. Contrary to the rigidity and formality of larger organizations, small organizations are characterized by informality and horizontal structures. Due to these characteristics, communication lines are short, and hence flexibility should be high. However, small scale, informality and proximity do not always guarantee knowledge sharing and learning. The small business owner-managers' inherent close involvement in day-to-day operations, coupled with the fact that the staff of a small business is typically lower educated, engenders a serious risk that the distance between owner-manager and staff may become too large. Examples of this, with serious consequences for the performance of the business, were present in our sample. Therefore, a lack of pre-defined moments for discussion with staff on new ideas, long-term objectives, and future strategies may impede entrepreneurial learning processes as well as hinder the step to organizational learning.

Finally, entrepreneurial learning requires, to a certain extent, that the owner-manager be freed of other tasks and responsibilities, in order to guarantee time and appreciation for searching and engaging in new networks. A major challenge for small business owner-managers is that, contrary to managers, tasks are completely person dependent. Rather than complying with a pre-defined task description or profile, small business owner-managers design, for the most part, their own tasks and responsibilities. The question, therefore, is not so much what the actual challenges of the tasks are, but more what the actual possibilities are for small business owner-managers to orientate themselves towards how to deal with the entrepreneurial role. Two major issues are at stake here: first of all the working culture, in terms of the interaction between the owner-manager and his/her employees; and secondly, time and money, or available 'slack' to experiment and learn. It has been suggested from studies on innovative and environmental behaviour of small businesses that discretionary slack allows firms to experiment and engage in reflection and learning (Hornsby et al., 2002; Lepoutre & Heene, 2006).

Furthermore, the breakdown of work-environment factors by business opportunities also seems to suggest that the four different types of business opportunities present different dynamics for learning. The differences between the four opportunities described above lie primarily in the level of unfamiliarity with the new situation. New methods of production represent predominantly the development of a new (or second) business, usually with the same product. In terms of origin and degree of development, market needs are defined and the general specification for the product is also known (Ardichvili et al., 2003). Furthermore, networks already provide strong relationships to support experimentation and learning, and the legitimacy to produce a certain product. By contrast, in pursuing business opportunities for which problems and solutions are both unknown, new knowledge has to be created, new resources have to be established and legitimacy has to be gained. Since we are dealing here with established family businesses, often inherited by sons from their fathers, the question is which of these types of business opportunities will provide the most long-lasting

learning effect on the business in terms of future growth and survival.

Accordingly, the examples illustrate a two-layered interaction effect between the business owner-manager and the work environment. Entrepreneurial learning is influenced by the work environment the learner engages in. At the same time, the work environment is (partly) (re)shaped by the owner-manager. This means that the richness of the work environment is not a static reality but is actively influenced by the business owner-manager.

These observations seem to fit well with the theoretical concept of ‘affordances’ as invented by Gibson (1979). According to Gibson (1979) an affordance is no more or less than what the environment provides, contributes or fosters (for the good or the ill) to the kind of interaction that occurs (Gibson, 1979; Greeno, 1994). However, affordances are always related to something. Greeno (1994) suggested using the term ability to refer to what the agent constructs in this interaction. In this specific study ability refers mainly to the small business owner-manager’s interests and willingness to engage with staff, clients, buyers, consumers and experts to generate ideas and evaluate practices. The examples not only stress the importance of ‘perception’ of affordances (Norman, 1999), but also indicate the influence of conventions (i.e. rule or principle), which prohibit certain activities and encourage others. A concrete example was a work environment in which the owner-manager used external interaction only when there were problems, for instance in delivery or quality. The small business owner-manager did not recognize the affordance, since it was associated with a different action (i.e. a cultural convention: ‘you do not use these contact moments for feedback and learning’).

This study also has limitations. The strong focus on a relatively homogeneous sector, greenhouse horticulture, raises the question of whether the data can be generalized to reflect other sectors. Although we have the impression that the collected evidence is not unique, the fast developments and continuous pressure on performance in greenhouse horticulture may provide extra incentives for business owner-managers to develop themselves or discontinue their businesses – incentives which might not be so eminently present in other sectors. Moreover, the question remains of whether a richer work environment in terms of the four identified factors really leads, eventually, to more business success, for instance in terms of firm growth and survival. Is a maximum, minimum or an optimal mix of factors required? These considerations are interesting areas for further research.

Implications

Despite the widely acknowledged importance of entrepreneurial learning, empirical work that specifically addresses factors of work environments influencing the process of entrepreneurial learning of small business owner-managers is limited. We tried to contribute to theory on learning in small firms by introducing a work environment perspective into the emerging field of entrepreneurial learning.

In our opinion, the research has implications for agencies that are engaged in entrepreneurship education. The entrepreneur is not only the creator of a business, but also the creator of his or her learning environment. Besides a strong focus on business plans, creativity, etc., entrepreneurship education should encourage students to add a learning lens to their work practices, rather than just a technical or managerial lens. Furthermore, the observation in this study that much of the entrepreneurial learning takes place in informal, on-the-job, settings, should be an impulse for formal educational institutes to design new learning environments with special attention given to entrepreneurial learning. These learning environments should include interaction and learning in multi-stakeholder learning settings, which are quite well developed in other educational settings, such as in education for sustainability.

General discussion



Abstract

After reviewing the main findings of the previous chapters, this final chapter combines these results in a discussion on the three contested research areas - the problem statements - introduced in the first chapter. Embracing a multi-method orientation to study competence also creates methodological challenges, which are discussed subsequently. It is suggested that further research should focus on improving validity of the developed constructs, testing observed relationships quantitatively as well as using perceptions of learning as an alternative explanation for observed differences in learning policy and strategies in small firms. Accordingly, steppingstones for entrepreneurship education and training are given, which comprise developing competence-based curricula and learning-oriented assessments, as well as general ideas for developing learning environments that better reflect small-business dynamics.

Introduction

Since the results of each study have already been discussed separately in Chapters 2 to 5 of this book, this chapter goes a step further by discussing the main findings together in the light of the literature, methodology, future research directions and practical implications. To do so, the first section recaps how the presented studies have answered the underlying research questions formulated in the introduction. In the subsequent section, the findings are discussed in the light of the contributions to the literature: in particular, how they address the general problem statements formulated in the introduction. Next, the strengths and weaknesses of the conducted studies are presented. Specific attention is paid to methodological issues. Subsequently, the generalizability of the research findings is discussed and suggestions are made for further research. Finally, in the last part of this chapter, practical implications of the conducted studies are suggested, focusing on the field of entrepreneurship education and training.

Main findings

In the last few decades, primary agricultural production in the Netherlands has been significantly influenced by firm intensification, firm expansion, productivity increases and function diversification. New pathways to growth, innovation and diversification put a strong emphasis on the entrepreneurial competence of farmers and growers. To date, it is unclear from the literature what is being learned in these processes, and what fosters the learning process of becoming (more) competent. Moreover, the work that has been done by other scholars on entrepreneurial competence focuses mainly on emerging rather than existing firms, and has been conducted in sectors other than agriculture (Cope, 2005; Rae, 2007). Therefore, the main objective of this thesis was:

To analyse how entrepreneurial competence can be characterized and identified, how it develops and how it can be fostered in small agricultural firms.

Chapters 2 and 3 of this book deal with the characterization and identification of entrepreneurial competence – the first part of this research objective. The focus of the

fourth and fifth chapters is on the development of entrepreneurial competence and the role the work environment plays in nurturing it – the second part of this research objective.

A first step in characterizing entrepreneurial competence in a specific sector is to answer the question of whether such a concept is recognizable and worth pursuing from the perspective of our research population. Therefore, the focus of Chapter 2 is on the question of how entrepreneurial competence is perceived by owner-managers (i.e. self-awareness) and whether they believe that competence can be improved (i.e. beliefs about improvability). These two elements were studied in a multi-source set-up. Not only were the opinions of owner-managers sought; their opinions were also complemented with the opinions of significant others in their work environment. More specifically, Chapter 2 addresses the following two research questions:

Q1. How do small business owner-managers evaluate their own entrepreneurial competence, and how do these evaluations relate to the perceptions of significant others in the work environment?

Q2. How do small business owner-managers assess the ‘improvability’ of their entrepreneurial competence themselves and how do these assessments relate to the perceptions of significant others in the work environment?

The results of the multi-source assessment revealed that theoretical characterizations of entrepreneurial competence are recognized and perceived as improvable by owner-managers in agriculture. The small business owner-managers in the first study tended to underestimate their own competence level, whereas studies of managers in large firms typically show an overestimation of personal attributes (e.g. Sala, 2003). Moreover, the small business owner-managers viewed entrepreneurial competence as something that can be developed, particularly in the fields of networking and leadership. Value clarification and international orientation were perceived as the least improvable.

Furthermore, with reference to the second parts of research questions 1 and 2, conceptions of entrepreneurial competence were not uniform within workplaces: elements of what is developed and can be developed further are partly idiosyncratic. In particular, the study illustrated that those who work inside the company (internal assessors) had sometimes different views about the relative strengths and weaknesses and the absolute level of entrepreneurial competence of the owner-managers compared to those who work outside the company (external assessors). The data also suggest differences in improvability as perceived by the internal and external assessors. External assessors saw more room for improvement for more externally orientated competencies, whereas internal assessors saw more room for improvement for internally oriented competencies.

In spite of the fact that the concept of entrepreneurial competence was recognized (Chapter 2), the demarcation of the concept remain far from clear. Part of the problem is the endless lists of skills, attitudes, traits and other characteristics associated with

entrepreneurs (Gibb, 2002). Studies have been conducted trying to integrate these elements into higher levels of abstraction and limit the scope of entrepreneurial competence. One of these is the study of Man et al. (2002) who assert that entrepreneurial competence consists of six competence domains, namely, opportunity, relationship, conceptual, organizing, strategic and commitment competencies (see also Chapter 3). Although their framework has theoretical grounding, there is limited empirical justification of this framework in small-firm settings in general and none in the context of agriculture. Therefore, in Chapter 3, a third research question was addressed:

Q3. Do the six domains of entrepreneurial competence, as originally put forward by Man et al. (2002), represent a meaningful clustering in an empirical analysis of entrepreneurial competence in the context of agriculture?

The quantitative analysis among 348 owner-managers revealed that three domains constitute the heart of entrepreneurial competence in this small-firm context, namely: analysing, pursuing and networking. The newly proposed model challenges the original clustering by Man et al. (2002) and has successfully passed multiple empirical validation tests. Analysing concerns the ability to analyse occupational core challenges, interpret them (think about their relative importance, their interrelationships and generalizability) and make inferences (make predications based on trends, conditions and tendencies for instance) which are laid down in goals or strategies. The pursuing domain involves taking initiative and being pro-active. It concerns being proactive in two different situations, namely, pro-active in searching for new opportunities as well as pro-active in current management practices. The networking domain represents social competence in relation to the entrepreneurial task. It concerns social competence on two levels: firstly being responsive, persuasive and able to adjust to others, and, secondly, being able to cooperate with other entrepreneurs and being open to feedback and suggestions from others. Typical meta-cognitive competencies did not constitute a separate domain but were integrated in both the analysing and networking domains. The results suggested that the three domains correlate to opportunistic small business owner-managers based on the classic craftsmen-opportunistic dichotomy.

The developed framework of entrepreneurial competence in Chapter 3 appears to be conceptually solid but reveals little about how it is used in practice and how it is related to performance. Furthermore, although it is suggested that these domains are subject to development, it is unclear how this development can be further specified (Macpherson & Holt, 2007). Therefore, in Chapter 4, the identified domains of entrepreneurial competence were integrated with organizational learning theory and related to firm-level outcomes of entrepreneurship. This resulted in the fourth research question:

Q4. How are entrepreneurial competence, its development and entrepreneurial performance related in small agricultural firms?

The nineteen cases studied in this research suggest that entrepreneurial competence of owner-managers is related to entrepreneurial performance at firm level and

entrepreneurial competence development to growth. Such relations were also found in studies in other sectors (e.g. Baum et al., 2001; Chandler & Jansen, 1992). However, this study adds the notion that the relationships between using competence, its development and firm performance are not straightforward, but influenced by other factors that should be taken into account. Based on differences between high- and low-performing firms, seven propositions were formulated that further specify the relationships between entrepreneurial performance, the owner-managers' use of competence and competence development.

Firstly, the results indicate that the relationship between entrepreneurial competence and entrepreneurial performance is not only influenced by business goals as suggested by Baum & Locke (2004) but also by the competence awareness of the owner-managers. Owner-managers of high-performing firms are more aware of the use of specific entrepreneurial competence – in particular with respect to using social competence.

Secondly, it is proposed that owner-managers of high-performing firms develop themselves in all the areas of entrepreneurial competence which mark the beginning of the opportunity development process, i.e. the phase in which the owner-manager begins to develop insights with respect to a possibility or business opportunity (Dutta & Crossan, 2005). In particular, those who performed highly over the last couple of years intensified their contacts with people with alternative views.

Finally, the results suggest interdependence between existing competence and competence development within competence domains (horizontal development), and between competence domains (vertical development). With regard to horizontal development, the data show that owner-managers of high-performing firms scored higher on activity for all the competencies and also reported a larger increase in activity for all the competencies compared to owner-managers of low-performing firms. Concerning vertical development, the results indicate that increased engagement in new networks (i.e. the networking domain) stimulates the development of adjacent competence domains.

Despite the suggested importance of entrepreneurial competence and its development for entrepreneurial performance, research specifically addressing the question of what fosters the development of competence is still in short supply. To contribute to current understanding of the development of entrepreneurial competence through entrepreneurial learning processes, a study was conducted on the role of the work environment. This focus originates from the notion of the invitational character of work environments (in the broadest sense) in terms of fostering learning (Billett, 2002; Gibson, 1979). This notion is rooted in the literature on work-related learning (Tynjälä, 2008). The underlying assumption is that the learning potential of a specific work environment can be recognized, guided and better exploited through analysis of existing activities, processes and characteristics that currently shape the work environment. In Chapter 5, this idea was applied to the activities and processes associated with opportunity identification and pursuit. Therefore, the final research

question addressed in this thesis was:

Q5. Which factors in the work environment specifically contribute to the development of entrepreneurial competence?

On the basis of a qualitative study of 25 owner-managers in horticulture, it was concluded that four factors are crucial in the entrepreneurial learning process. In order of importance, these were: support and guidance, external interaction, internal communication and task characteristics. Although these factors are not exclusive to small firms (e.g. McCauley et al., 1994), they show some features which may help the further theorizing of entrepreneurial learning. The breakdown of work-environment factors by the types of business opportunities identified and pursued suggests that the different types of business opportunities are related to different dynamics for learning. Opportunities which reflect a relatively limited gap between the current and the desired situation (e.g. a new, but similar, product) represent a different learning task than opportunities for which problems and solutions are unknown, new knowledge has to be created, new resources have to be established and legitimacy has to be gained. What is more, the results in this chapter illustrate the bidirectional interaction between the business owner and the work environment. Entrepreneurial learning is influenced by the work environment the learner is engaged in. At the same time, the work environment is shaped or reshaped, wholly or partly, by the entrepreneurial learner.

Research findings in a broader perspective

In Chapter 1, three contested areas in current scientific literature were addressed. The areas included the positioning problem, the competence problem and the individual learning problem. In this section, the main findings of this thesis are discussed in the light of these problems.

The positioning problem

This thesis contributes to a more theoretically grounded positioning of the agricultural entrepreneur in scientific literature by introducing the opportunity concept. This proposition is based on the following line of reasoning.

One of the key assumptions in this thesis is that existing small, often family-owned, firms such as those in agriculture provide an interesting context for studying entrepreneurial processes. Some scholars question this assumption by stating that small business owner-managers are clearly different from true entrepreneurs, due to their focus on survival, private goals and their dependence on low technology and craftsmanship (c.f. Carland et al., 1984). Indeed, some small business owner-managers may be incorrectly labelled as entrepreneurs, yet there are also many other small business owner-managers who have entrepreneurial goals of growth and are very innovative, despite perhaps not being the first in their industry (Gartner, 1989). Unfortunately, the agricultural literature does not really support the scientific debate on entrepreneurial processes, since it provides a multitude of operational definitions of the agricultural entrepreneur

(compare for instance Burton & Wilson, 2006; Carter, 2001; Eikelund, 1999; Van der Ploeg, 2009 and Vesala & Vesala, in press). On the one hand, the term entrepreneurial is equated with scale enlargement, efficiency and optimization of management (e.g. Van der Ploeg, 2009). On the other hand, entrepreneurial has been connected with multifunctionality or with the process of gradually excluding agricultural activity as the only source of income (Burton & Wilson, 2006; Carter, 2001; Eikelund, 1999; Vesala & Vesala, in press).

As stated, this thesis contributes to the discussion about entrepreneurship in agriculture by introducing the opportunity concept from the general entrepreneurship literature (Ardichvili et al., 2003; Gaglio & Katz, 2001; Shane, 2003; Shane & Venkataraman, 2000). From this perspective, entrepreneurship involves a clear task for the owner-manager, namely, the identification and pursuit of business opportunities. Associated with this task are necessary competencies and learning processes. All the four empirical chapters illustrate that such an operationalization is recognizable for agricultural entrepreneurs and provides a rich context for studying entrepreneurial learning and development processes. A focus on the identification and pursuit of opportunities as the core of entrepreneurship emphasizes the creative, alert, pro-active and networking aspects of entrepreneurial activity (Detienne & Chandler, 2004). Consequently, it does not necessarily exclude or include owner-managers who are focused on primary production or those who are active in business diversifying activities, as suggested by other scholars. A focus on how owner-managers identify and pursue business opportunities enables researchers to shift from the question 'who is the entrepreneur?' to the question 'what does the entrepreneur do?' (Gartner, 1989). Such a conceptualization helps to avoid the conceptual swamp of defining the entrepreneur, and at the same time opens the door for scholars active in agriculture with a background in education, extension, sociology or psychology to contribute to entrepreneurship research on learning and cognition (Baron & Ensley, 2006; Corbett, 2007; Mitchell et al., 2007). In this respect, suggestions for future research are given in the section of the same name in this chapter.

The competence problem

This thesis also contributes to what was labelled as the competence problem in Chapter 1. The individual, human, competence concept has gradually entered the theoretical debate in the study of small business and entrepreneurship (Baum et al., 2001; Chandler & Jansen, 1992; Man et al., 2002; Ucbasaran et al., 2008). Nevertheless, current firm-level literature does not really provide starting points for studying it (Capaldo et al., 2002). While reading, writing and presenting about entrepreneurial competence, the current researcher became aware that the notion has received little attention in personality psychology due to a lack of underlying theory and empirical rigidity and its practitioner-based focus (Heinsman et al., 2007; Shippmann et al., 2000). In addition, it seems to be unattractive for social scientists because of its connotation with fragmentation and atomization and ignorance of the complexity of work contexts (Sandberg, 2000).

As stated in Chapter 1, the legacy of disintegrative and reductionist models of competence has moved researchers in the direction of applying more comprehensive approaches to competence to overcome these critiques, especially during the last decade and not only in the Netherlands but also in countries such as France, Germany and Austria (Biemans et al., in press; Delamare Le Deist & Winterton, 2005). One strategy in this regard is to adopt a multi-method orientation to competence. Such a method is not limited to generic notions of competence, but also pays attention to the actual work activities and work context (Lievens et al., 2004; Shippmann et al., 2000). The starting point in this thesis for investigating entrepreneurial competence in agricultural practice was theory – this in contrast to traditional, generic competency modelling approaches which have their starting point in behavioural-event interviews in practice (Rothwell et al., 1999). Explaining entrepreneurial performance based on such models would be tautological as the corresponding definition of competence already refers to superior performance (see Boyatzis, 1982).

Furthermore, conceptions of competence in the literature were first explored in this thesis in a multi-rater set-up, which provides the researcher with information about the views different raters have about competence and its improvability. This shows that the use of more general formulations of entrepreneurial competence need to be treated with care, since internal and external assessors hold somewhat different views on these competencies than owner-managers themselves.

Subsequently in the thesis, the problem of atomization and fragmentation was addressed by factor analysing competence-related statements into broader competence domains which specify meaningful dimensions of entrepreneurial competence. Such an empirical clustering does not necessarily match a theoretically sound clustering as illustrated in Chapter 3. An empirically sound clustering resulting in a limited number of domains is not only interesting for practice, but also relevant for researchers involved in workplace learning as well as competence assessment. Since workplace learning outcomes are hard to specify (contrary to learning in schools) (Tynjälä, 2008), the three elicited domains can assist research on the ‘what’ question, i.e. what is learned in the entrepreneurial learning process (Cope, 2005). For researchers interested in the assessment of owner-managers’ entrepreneurial competence, these domains can help to narrow down the potential number of skills and competencies since it is known that individuals are not capable of rating a large number of dimensions (Heinsman et al., 2007).

Finally, the use of more dynamic, task-related measures for entrepreneurial competence opens up the possibility to study more specifically the complex relations between competence and performance (Baum & Locke, 2004; Rauch et al., 2005; Unger, 2006).

The individual learning problem

Finally, this thesis contributes to what in Chapter 1 was called the limits of individual learning in entrepreneurial learning research. Although individual learning processes are important in entrepreneurial learning, small-firm research suggests that learning processes are also influenced by the complex relationships between the individual and relevant others, which may support entrepreneurial learning (Jones & Macpherson, 2006; Zhang et al., 2006). There are many ways to study the relationship between individual and social learning processes, ranging from studying the influence of social mediation on the individual learning process, to a focus on social learning systems and studying how learning and knowing evolve in a community of practice (Salomon & Perkins, 1998). In this thesis, social learning has been researched from the perspective of its relation with individual learning and development in small firms.

Firstly, the results in Chapter 5 show that the social environment of the owner-manager is a very powerful factor in fostering the learning process associated with the identification and pursuit of opportunities. Others, such as family, friends and suppliers, were crucial in this process. More particularly, the results in Chapter 4 propose that networking, in particular the expansion of contacts with other than existing networks and the further use and development of organizational relationships (e.g. suppliers, buyers), seems to fulfil a pivotal role in the overall entrepreneurial competence development of the owner-manager. Additionally, which competencies are seen as developed and/or improvable is most likely influenced by what is valued and promoted in a particular social practice (Chapter 1). These findings provide additional support for the idea that the social context affects the entrepreneurial process in different ways (Dimov, 2007a). It does not only provide information benefits and/or resources as suggested by economic sociology literature, but it also influences further shaping and developing owner-managers' ideas and competence.

Secondly, the results show that there are differences between owner-managers in the ways in which they employ their social competence. Owner-managers' perceptions play an important role in this dynamic relationship. The study described in Chapter 4 suggests that owner-managers of high-performing firms not only have high self-reported social competence, but are also very aware of how they use this particular competence domain. They were more aware of how to use social competence in different situations. Such a viewpoint on social competence may enhance current understanding of *what* is being developed in high-performing entrepreneurial firms and suggests that current statements of entrepreneurship researchers that social competence does not improve over time (Baron & Tang, 2009) should be viewed with care. Our findings suggest that high-performing firms perhaps have not further developed their social abilities, but have *developed* a better *understanding* of them.

In line with this finding, perceptions of owner-managers differ in what they regard as affordances for learning and development (Chapter 5). Although aspects of the working context can be described objectively (e.g. number of weak ties, types of

tasks undertaken), they may not be recognized by owner-managers as beneficial for the processes for which researchers think they might be relevant. Insights like these contribute to our limited understanding of differences between novice and expert entrepreneurs (e.g. Baron & Ensly, 2006) and of how work-environment factors influence corporate entrepreneurship on different managerial levels (e.g. Hornsby et al., 2009).

Methodological issues

A broad range of research methods (multi-method approach) was used to gather and analyse the data for this thesis. Although the individual strengths and weaknesses of the different methods have already been discussed in the separate chapters, there is more to say about the overall methodology. In order to do so, Berings et al.'s (2006) framework is used as a frame of reference. This framework provides guidelines for evaluating the overall methodology in work-related learning research. On the basis of available research on work-related learning in different settings and occupations, Berings and colleagues (2006) suggest six methodological aspects to which researchers in the field of work-related learning should pay attention. These aspects are discussed in detail in relation to the studies in this thesis in the following sections.

Acknowledge the situatedness of learning in the workplace

The first issue raised by Berings et al. (2006: 356) is whether the researcher pays attention to *'the nature of the task itself, the cultural and social relations that characterize the workplace and the experiences and social world of the participants'*. In this thesis, attention focused on one task of the owner-manager, namely, the identification and pursuit of opportunities. As explained, this task is dynamic in nature, it shapes direction and sets the tone of the overall business. The results obtained by interviewing the owner-managers about aspects related to this task, such as competence, have been described and explained from the agricultural cultural-historical heritage. This heritage includes the family-firm structure, the productivist mindset, the influence of agricultural knowledge systems and the Common Agricultural Policy (CAP).

On a micro-level, Chapter 5 paid attention to how the work environment, in terms of cultural (internal communication) and social relations (e.g. guidance and support), influences this particular entrepreneurial task.

Make the research paradigm explicit

Berings et al. (2006) advocate that researchers be explicit about the underlying research paradigm in relation to the methods used. In the different chapters presented in this thesis, there has not been an explicit discussion about the underlying research paradigm. The origin of this thesis research can be found in observations in present agricultural practice, such as firm intensification, firm expansion, innovation and function diversification, i.e. developments that are interesting from the perspective

of individual learning and development. This eventually led to the general research goal as stated in the first chapter.

To explicate the underlying paradigm that guided the investigation of this research objective, it is best to look at how the research objective has been further worked out in terms of research goals and how the research concepts were translated into operational definitions. Core concepts in this research were entrepreneurial competence and entrepreneurial learning. As can be seen in the first chapter, the corresponding conceptual definitions are still rather volatile. Whereas from a constructivist, humanistic paradigm the focus would be on the individual constructions of such concepts (e.g. multiple realities exist, which are all equally valid), research from a more positivistic paradigm would focus on the measurement of those concepts (e.g. one reality exists that is knowable with a significant level of certainty).

Although these two paradigms in their most radical forms represent very different epistemological traditions, variants of these research paradigms are not always mutually exclusive and can be complementary (Bernard, 2006). Heath (1992) illustrates this point by using the analogy of political stances. Whereas Democrats and Republicans have in their purest identity different, competing underlying beliefs and traditions, conservative Democrats and liberal Republicans are far more similar than different. Complementary does not necessarily mean the integration of different paradigms, as pursued by some scholars (e.g. Billett, 1996). It means in this context that the dominant paradigm guiding the methodology can be complemented with elements of another paradigm to inform or to extend the dominant perspective (Akkerman et al., 2007; Greeno, 1998; Salomon & Perkins, 1998).

In this thesis, the underlying epistemology has been positivistic in nature, i.e. there is one reality of entrepreneurial competence, albeit a very complex, multi-faceted concept of which very little is known so far. Without getting bogged down in a discussion of semantics, Berings et al. (2006) refer to this as the more classic research paradigm. All together, the aim of this thesis was to arrive eventually at clear hypotheses and measures to further investigate what causes and stimulates the development of entrepreneurial competence in small firms. As can be seen in Chapters 2 to 4, entrepreneurial learning and competence have gradually been specified, resulting in more strict operational definitions, in order to provide the possibility to study the presumed relationship between dependent variables (entrepreneurial performance) and independent variables (entrepreneurial competence). Similarly, general workplace factors affording learning have been specified as more finely grained elements for entrepreneurial learning in small firms. This was done to be able to make operational definitions for studying the presumed relationship between workplace affordances (independent variable) and the development of entrepreneurial competence (dependent variable). However, Chapter 5 illustrates the importance of paying attention to different perceptions about what could be seen as objective elements in workplaces which afford learning. Such an observation was possible due to the adoption of the critical incidents technique. This technique

has its origin in positivistic approaches to social sciences (Flanagan, 1954), but is used increasingly in interpretive and phenomenological paradigms (Billett, 2000; Cope & Watts, 2000). Findings like these question the container view of context (see Chapter 1) and open the door for viewpoints which are more prominent in what Berings et al. (2006) call the new paradigm (e.g. constructivist). As was concluded in Chapter 5 (p. 105): *'Accordingly, the examples illustrate a two-layered interaction effect between the business owner-manager and the work environment. Entrepreneurial learning is influenced by the work environment the learner engages in. At the same time, the work environment is (partly) (re)shaped by the owner-manager. This means that the richness of the work environment is not a static reality but is actively influenced by the business owner-manager.'*

Triangulate

Guideline 3 as defined by Berings et al. (2006) states that it is important to triangulate in order to provide different perspectives on work-related learning. In this thesis, triangulation played an important role in revealing different perspectives on the outcomes of work-related learning: outcomes on the individual level (competence) and on the firm level (firm performance). Although it is often assumed that triangulation is the use of multiple methods in studies, there are actually four types of triangulation (Denzin, 1990). The first type of triangulation is data triangulation, which encompasses time, space and persons. The second type is investigator triangulation, in which multiple informants are used to observe the same phenomenon. The third type is theory triangulation, which combines multiple theories for interpretation of the same phenomenon. Finally, there is method triangulation, in which multiple methods are used to study the same phenomenon, which can be within-method or between-method strategies.

In this thesis, three types of triangulation were used: investigator triangulation, data triangulation and method triangulation. Chapter 2 displays an example of investigator triangulation to map competence. Multiple informants (self, internals, externals) were used to map owner-managers' competence. Data triangulation was used in Chapter 4, in which entrepreneurial performance data were triangulated by combining data generated by the yearly Innovation Monitor, data from the Accountancy Data Network and data from interviews with the owner-managers themselves. Method triangulation almost speaks for itself since this thesis started from a multi-method perspective on competence. Chapter 2 started by using general worker-oriented competence descriptions. Chapter 3 continued with item-level descriptions of competence to formulate more comprehensive domains of competence. The fourth chapter focused on the task itself and used concrete work activities as descriptors for competence.

Use additional instruments

Guideline 4 states: *‘in addition, use other instruments, such as observations, diagrams, personal narratives and documents, besides questionnaires and interviews to study the complex interplay of the learner’s deliberate and spontaneous internal process and the social environment’* (Berings et al., 2006: 365). Besides applied research literature (e.g. Innovation Monitor, Van Galen & Ge, 2009) and articles from professional magazines (e.g. *Onder Glas* [Under Glass] and *Nieuwe Oogst* [New Harvest]), no additional instruments were used. At the start of this research it was proposed to use a diary method and observations for studying work-related learning. Since small firms are a very difficult target group for research – owner-managers have very little time – this was unfortunately not a feasible research strategy.

Make the role of the researcher explicit

The fifth point that Berings et al. (2006) make is that researchers should be explicit about the role they themselves play in the research (independent data collector, informant, passionate participant, activist, reflexivist), thus recognizing the influence of the researcher. To be brief: the researcher in these studies assumed the role of independent data collector. This role was not made explicit in the four empirical chapters of this thesis. However, before, during and after the interviews it was extremely important to be clear about this role. Farmers and growers are literally flooded with ‘research’ requests and have had plenty of negative experiences with researchers. Examples include cases in which there was never any follow-up after the interview took place, in which results were distributed without consent and even cases in which the results were used against them (for instance if environmental issues were involved).

This thesis focuses on highly personal issues sensitive to response effects (being an outsider as researcher, not one of them) and social desirability. Therefore, confidentiality and trust were crucial. Several measures were taken to establish the right connection with the interviewee and a trustful bond. Initial contact was always made via trusted third parties. After this initial contact, the interview protocols were first discussed and approved by these third parties. Interviews were always conducted by the researcher personally, and at the firm of the particular owner-manager. It was stressed multiple times that the results would be treated confidentially and that the underlying data would remain the sole property of Wageningen University, only to be used for this thesis and related scientific publications.

Finally, all participants (in the interviews and e-questionnaire) received in return a tailor-made report of the findings in which their answers were accompanied by the answers from the larger interviewed group as a reference point.

Maintain rigour and quality

Berings et al.'s (2006) sixth and last point addresses the question of how the researcher maintains rigour and quality, before, during and after data collection. Specific aspects of rigour and quality, such as validity and reliability, have already been discussed in the different empirical chapters. In this section, two more general aspects that influence the quality of the collected data are discussed, namely, a reliance on self-report measures and the post-test character of the research.

Self-reported data are known to be vulnerable to inaccuracy (Bernard, 2006). What people say they do may often differ from what they really do. Variables that influence the accuracy of self-reported measures are reference groups (who do you compare with), meta-skills of the respondents (self-awareness, self-insight, etc.) (Ehrlinger et al. 2008), social manipulation (i.e. social desirability) and using very crude rules of inference (Bernard, 2006). With the research methods adopted in this thesis, a total exclusion of self-report bias is difficult. However, several procedures were followed to limit this bias as much as possible. The most important procedures that were adopted to deal with these threats were:

- using context-appropriate measures, rather than using fixed research constructs used in other studies (Chapters 2-4);
- preventing matrix-completion effects by presenting questions one at a time (Chapter 3);
- explaining the function of the research itself: addressing the importance of giving thought to the questions and explaining the benefit for the interviewee of generating answers that are as true and accurate as possible (all chapters);
- explaining the role of the researcher in the study (all chapters);
- cross-checking self-assessments with other sources through investigator triangulation (Chapter 2) and data triangulation (Chapter 4).

In line with the previous point, this thesis deals with entrepreneurial competence and its development using what experimental researchers would call a post-test design. It is retrospective by nature. The respondents in these studies were asked to recall activities (related to competence and learning) from the past (Chapters 4 and 5). So there was no 'before' measurement to see whether the answers given by the respondents really reflected change, for instance in broadening, deepening or enriching their competence. It is possible in such studies for respondents to simply forget certain examples which had an impact, or for respondents not to pay attention to events which in their perception are self-evident.

Some proof of this was found in the discussions held with owner-managers about the answers they gave on how often they carried out a particular activity at present, and whether they had perceived an increase/decrease in carrying out this activity during

the last five years. In some cases, the answer given by the owner-managers seemed to conflict with the subsequent story behind the answers. For instance, owner-managers who claimed to be focused only on the Dutch agricultural situation appeared to travel extensively with their study group all over the world or were heavily involved in non-agricultural sponsoring or business clubs. In general, the qualitative research methods applied in Chapters 4 and 5 allowed for ways to check the accuracy of the respondents' recollections. Again, a total exclusion of retrospection bias is difficult. However, several procedures were followed to limit this bias as much as possible. The most applied strategies here were:

- asking for clarification or examples (to confirm earlier statements or to get more background information on apparently contradictory answers);
- asking not only about successes but also about failures;
- asking respondents to recall actual events associated with the accomplishment of a certain task.

In relation to the last point, although it is generally assumed that cueing (such as asking for critical incidents) increases the accuracy of self-reported behaviour (e.g. reducing forward telescoping) (Bernard, 2006), these approaches have been critiqued in work-related learning also. Eraut (2004) states that the use of critical incidents in work-related learning research tends to focus on atypical learning situations (e.g. salient learning situations that may have been told and 'polished' many times), which are not necessarily the most powerful events. Critical incidents often do not capture more implicit, unconscious, continuous ways of learning, such as normal day-to-day problem solving, which may also contribute to the development of certain aspects of competence (Eraut, 2004). This is a clear disadvantage of the critical incident approach.

Generalizability and directions for future research

All the efforts to analyse how entrepreneurial competence can be characterized and identified, how it develops and how it can be nurtured were performed from a context-specific view. This context was Dutch agriculture, in particular primary production firms with a maximum of 25 employees, which were owned and managed by one or two persons whose firms had participated in growth, innovation or diversification in horticulture or multi-functional agriculture during the previous five years. So, in line with such a context-specific approach, the results of this study are at most generalizable to firms and their owner-managers meeting these specific criteria. Since the content of this thesis was more about forming hypotheses than testing them, it is not easy to generalize the results to other situations, environments and contexts.

It is considered unlikely, however, that the results of this thesis only apply to the context of Dutch agriculture. Some of the results, in particular some of the issues found in the third and fourth chapters, seem to show a broader applicability than the described research setting. Recently, 120 expert interviews from six European countries were

used to elicit necessary entrepreneurial skills in the broader farm context (De Wolf & Schoorlemmer, 2007). This analysis resulted in three domains of entrepreneurial skills, namely, skills to recognize and realize business opportunities, skills to interact with other people/groups (networking, co-operation) and strategic skills. Although these domains contain a wide diversity of underlying elements, they show a high degree of resemblance to the competence domains elicited from the quantitative study in Chapter 3. In addition, a recent large-scale survey which was administrated to 245 conventional farms, 380 diversification farms and 126 non-farm rural small businesses illustrated that some dimensions of success (such as size, profit, growth) were explained by the sum variable of the aforementioned set of skills (Vesala & Pyysiäinen, 2008). Also, in dairy farming, Bergevoet (2005) concluded that dairy farmers who had higher scores on self-reported entrepreneurial success had higher scores on entrepreneurial competence. Nonetheless, to improve our understanding of the nature and development of entrepreneurial competence in small firms, there is still a lot of research to be undertaken.

A first line of research would involve improvement of the content validity of the constructs developed in Chapter 3. As explained in the first chapter, the concept of competence is plagued by ambiguity and its operational definition differs enormously between studies, thus making it difficult to compare findings. Therefore, it is suggested that research be undertaken to examine how entrepreneurial competence as characterized and defined in this thesis relates to other theoretically related constructs. It would be interesting to relate the context-specific constructs in this thesis to more generic constructs such as new-resource skill (Baum & Locke, 2004), cognitive ability (Unger, 2006), entrepreneurial self-efficacy (Chen et al., 1999) and entrepreneurial personality constructs (see Rauch & Frese, 2007), which are known to play an important role in explaining entrepreneurial success (e.g. pro-active personality, locus of control, need for achievement).

Secondly, there are still many questions concerning the complex interplay of antecedents and impacts of entrepreneurial competence in small firms. Although some examples of this complex interplay have been reported (Baum & Locke, 2004), some are new (i.e. competence awareness). Furthermore, these results have not been replicated in other sectors or studied with more context-appropriate measures as developed in this thesis.

Thirdly, in this thesis several times the importance of work-environment factors is emphasized. Although some import factors are suggested in Chapter 5 (e.g. external interaction guidance and support), research investigating the *effects* of different learning situations (and their interactions) on learning and development is still scarce (Poell et al., 2004). Structural equation modelling seems to be promising for testing such relationships (Maurer et al., 2003a; Yang et al., 2004).

Finally, as concluded in Chapters 2 and 5, perceptions about the improvability of entrepreneurial competence as well as perceptions about workplace learning

opportunities differ between small business owner-managers. Since small firms are heavily influenced by owner-manager decision making, it would be interesting to find out how such perceptions explain the heterogeneous learning policy and learning strategies often observed in small firms (Kitching, 2008). Such a more interpretive analysis could complement current economic explanations for the lack of participation of owner-managers in management development programmes (Storey, 2004).

Practical implications

The primary aim of this thesis was to arrive at a better understanding of entrepreneurial competence and its development in small agricultural firms. These concepts are interesting not only from a theoretical and empirical point of view, but also from a practical point of view. In this section, the results of this thesis are discussed from the perspective of entrepreneurship education and training. A broad definition of entrepreneurship education is adopted in line with Fayolle and Klandt (2006) and Katz (2007), defining it as any programme or process aimed at making business owners–managers more entrepreneurially competent. The practical implications of this research for entrepreneurship education and training are worked out along three lines, in accordance with Hodkinson's (1995) virtues of competence. These virtues are: making professional practice more transparent, encouraging learning-oriented (formative) assessment and unravelling work-related learning.

Various discussions with knowledgeable experts from Dutch applied research institutes, product boards, farmer unions and branch organizations, agricultural education, students of higher agricultural vocational education and participants (owner-managers in greenhouse horticulture and tree nursery) in courses run by the chamber of commerce have contributed to this section and shaped the proposed practical applications.

Making professional practice more transparent

The third chapter of this thesis presented a framework of entrepreneurial competence in the agricultural context. As stated, this framework is interesting for those who are involved in entrepreneurial competence development programmes in agricultural and rural settings as well as for educational policymakers in agricultural education who are involved in designing competence-based education as part of the transition of national vocational education qualification structures, which will be aligned to the overall European qualification framework (EQF) in 2010 (Brockmann et al., 2008). Even though the three entrepreneurial competence domains identified in this thesis do not describe the whole conception of entrepreneurial competence for an entrepreneurship course or training, they do offer adequate steppingstones for developing courses/training in the field of agricultural entrepreneurship. Moreover, deductions always have to be made (Hager, 2004), and the three domains prevent researchers from falling into the functional-behaviouristic trap of formulating endless lists of fragmented behaviours.

A first step for those involved in agricultural entrepreneurship training programmes is to use the suggested framework to address the participants' understanding of entrepreneurial competence in their specific situation. What does networking mean for owner-managers involved in care farming or organic production? Generating such understanding can be done in various ways, individually and in groups. In individual trajectories, a participant can contextualize entrepreneurial competence in close cooperation with the organization the participant is representing. In collective activities, for instance in peer groups or focus groups, participants who have congruent or very different visions on entrepreneurial endeavours can group together to discuss their positions and ask critical questions about the others' standpoints. Such activities can serve as a starting point for further developing tailor-made learning trajectories for owner-managers.

For educational policymakers active in developing competence-based curricula, the framework could also serve as a steppingstone in the design of competence-based education. One of the first phases in competence-based education is the development of competence profiles (Wesselink et al., 2007). In their study on the implementation of competence-based education, Wesselink et al. (2007) stated that competencies, which are the basis for learning trajectories, should be formulated with care and in close dialogue with relevant business partners and colleagues. The identified competence domains could facilitate this identification process by providing beacons in clear language without making the process deterministic.

Encouraging learning-oriented assessment

An important question that continues to keep many professionals and scholars busy is what kinds of people are successful entrepreneurs. The abundance of entrepreneurial attribute scans available on the commercial market (e.g. e-scan, Driessen, 2005) confirms such interest¹. In the agricultural sector, for example, there is a growing increase in agricultural entrepreneurship scans available from commercial parties such as banks, applied research institutes, branch organizations and educational institutes active in the field. From this perspective, it should be possible to unambiguously select and assess (potentially successful) entrepreneurs on the basis of standardized questionnaires which assess a certain selection of entrepreneurial characteristics. The question, however, is whether this kind of assessment is of interest from an entrepreneurial learning perspective. Does the agricultural sector benefit most from people who have a unique set of universal entrepreneurial attributes or does the sector need owner-managers who have the ability to identify their personal entrepreneurial strengths and intentions and are eager to develop themselves in relation to the various opportunities the agricultural environment offers?

This thesis suggests the latter. It is not so much of a challenge to assess the characteristics

¹ Simply typing `ondernemersscan` [entrepreneur scan] in Google results in more than 1,000 hits.

that entrepreneurs have and label these entrepreneurs subsequently as successful or not successful; the real challenge is to investigate awareness and understanding of entrepreneurial competence, accompanied by a notion of what should be further developed in order to nurture more successful professionals. Thus, in line with the growing assessment literature in which the focus on high-stake, standardized tests is diminished (Birenbaum et al., 2006), it is argued that, to stimulate entrepreneurship, the focus should be on assessments that are designed *for* learning rather than assessments that are designed for the ex-post assessment *of* learning.

The multi-rater assessment practices applied in the third chapter provide a clear example of assessment for learning. Firstly, this approach provides owner-managers with a concrete language to talk about and discuss competencies associated with the entrepreneurial role with other relevant stakeholders in their business environment. Personal issues are usually not the easiest issues to talk about in small firms. Secondly, such discussions can help owner-managers raise their self-awareness and consequently help them bypass some of their often costly trial-and-error learning experiences. Finally, a potential advantage of engaging firm owner-managers in multi-source (formative) assessments is that, besides stimulating their own development, it can help raise awareness about the learning opportunities for employees and others involved in the small firm as well.

Unravelling work-related learning

Billett (2002) argues that traditional educational practice does not fit well with the learning practices small businesses engage in. The results of this thesis do not provide answers to the question of which learning activities are best. It is not suggested, as often is the case in popular media², that all entrepreneurial learning should be about learning-by-doing, mentoring (Sullivan, 2000) or action learning (Clarke et al., 2006). This thesis provides general ideas that could help people involved in education and training develop learning environments that better reflect small-firm dynamics.

Firstly, guidance, reflection and support are critical for entrepreneurial learning. As illustrated in Chapter 5, these are provided by a wide variety of contributors including critical co-workers, personal coaches, role models and competitors. The positive value attached by the owner-managers to guidance, reflection and support underlines current strategies to increase coaching of agricultural entrepreneurs in the Netherlands. The results in Chapter 2 suggest that these coaches will probably be confronted with underestimation of entrepreneurial competence among a significant group of owner-managers. For coaches it will therefore be important to make owner-managers more aware of their entrepreneurial strengths and to assist them in working on their confidence (e.g. self-efficacy in general, but also specifically concerning learning and development) by providing them with more regular feedback. Furthermore, these

² See for instance Young Enterprise, <http://www.young-enterprise.org.uk/>

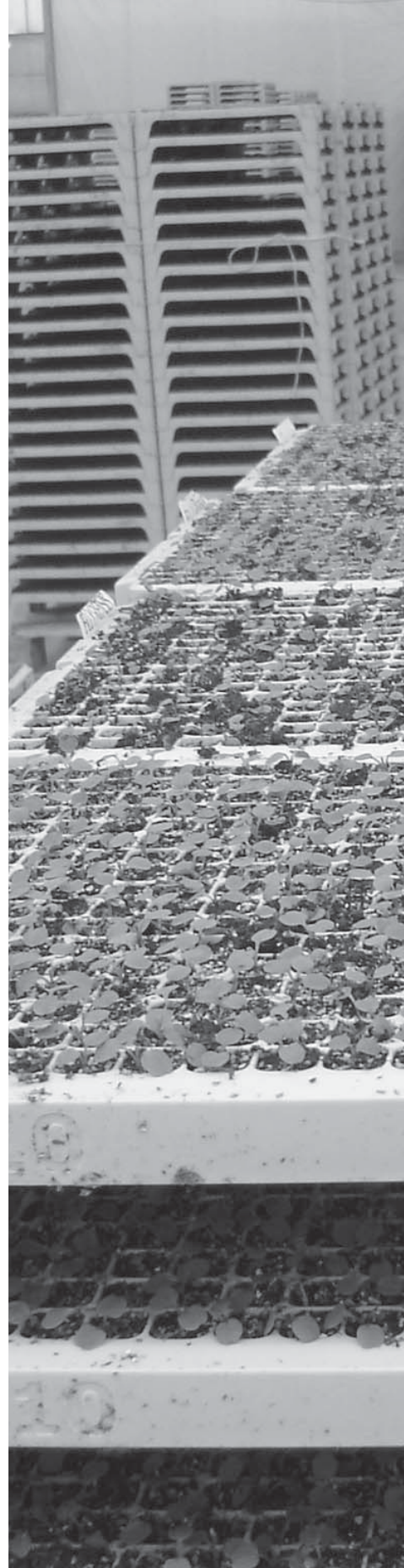
coaches could also assist owner-managers in making them more aware of the learning potential of their workplaces.

Secondly, similar to what studies in innovation management, strategic change and organizational learning suggest (Batterink, 2009; Geletkanycz & Black, 2001; Klerkx & Leeuwis, 2008; Zhang et al., 2006), the outcomes of this thesis underline the importance of the interaction of owner-managers with a wide diversity of networks for the development of entrepreneurial competence (Chapters 4 and 5). Therefore, entrepreneurs and future entrepreneurs should be confronted with the challenges of working and learning in multi-stakeholder settings. Such settings are not only beneficial for the development of social competence (Verstegen & DeLauwere, 2009), but will also provide opportunities for learning to deal with the dilemmas and challenges that are associated with sharing and creating new knowledge (Du Chatenier, 2009; Wielinga & Vrolijk, 2009).

Final word

Bearing in mind that important intellectual underpinnings of entrepreneurship education have their roots in agricultural extension more than hundred years ago (Katz, 2003; Katz, 2007) it is positive to see that science and practice increasingly acknowledge the rich setting agriculture provides for studying and developing entrepreneurial competence. This research has tackled some aspects of the complex relationships between entrepreneurship, agriculture and competence. Although these three labels represent very different research traditions, there are many possible routes to integrate ideas generated in all three fields. This research has tried to do so by conducting a series of studies that have moved our knowledge about entrepreneurial competence in agriculture a small step forward.

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Summary

Entrepreneurial competence in agriculture: Characterization, identification, development and the role of the work environment



In the last few decades, primary agricultural production in the Netherlands has been significantly influenced by a reduced protection of agricultural markets, changing consumer habits, enhanced environmental regulations, new requirements for product quality, chain management, food safety, sustainability, and so on. Farmers and growers increasingly require entrepreneurial competence to deal with these developments and identify and pursue new business opportunities. Entrepreneurial competence in agriculture refers to the exploration of new pathways to firm growth, innovation and diversification and the ability of owner-managers to identify and pursue such opportunities. Although in scientific literature entrepreneurial competence is seen as a potentially attractive concept, it is plagued by a lack of underlying theory and empirical rigidity, its practitioner-based focus and a strong connotation with fragmentation, atomization and ignorance of the complexity of work contexts. Moreover, most studies reported in entrepreneurship literature i) stop either just before or just after firms emerge, ii) provide few methodological starting points for studying entrepreneurial competence, and iii) pay little attention to social and task-related influences on entrepreneurial competence development.

Therefore, the objective of this thesis is to analyse how entrepreneurial competence can be characterized and identified, how it develops and how it can be fostered in the context of small agricultural firms. A multi-method approach was adopted to investigate the entrepreneurial competence concept from different perspectives in four empirical studies. These studies will be described subsequently. After this, attention will be paid to the contribution of this thesis to scientific literature as well as (educational) practice.

Empirical studies

In Chapter 1 the core concepts of this thesis are defined. The first empirical study (Chapter 2) examines two individual factors that relate to entrepreneurial competence and potentially influence its development, namely, self-awareness and beliefs about the improbability of entrepreneurial competence. The first two research questions formulated in this thesis are: Q1). *How do small business owner-managers evaluate their own entrepreneurial competence, and how do these evaluations relate to the perceptions of significant others in the work environment?* and Q2). *How do small business owner-managers assess the 'improvability' of their entrepreneurial competence themselves and how do these assessments relate to the perceptions of significant others in the work environment?*

The study was carried out by means of a multisource assessment among 36 owner-managers. The results show an almost consistent underestimation of entrepreneurial competence and reveal that entrepreneurial competence is seen as being subject to (some) development. The data illustrate the implicit nature of much of what is learned during work and suggest lack of feedback on entrepreneurial accomplishments. Furthermore, the results suggest that what is viewed as developed and improvable is

not only based on personal 'objective' judgements, but is most likely influenced by what is valued and promoted in a particular practice.

The second study, described in Chapter 3, concentrates on identifying the heart of entrepreneurial competence in small agricultural firms. In this third chapter, an existing categorization of competence, consisting of six domains, is elaborated and validated, building further upon earlier work of Man et al. (2002). Therefore, the following research question was addressed in the second study: Q3). *Do the six domains of entrepreneurial competence, as originally put forward by Man et al. (2002), represent a meaningful clustering in an empirical analysis of entrepreneurial competence in the context of agriculture?*

A quantitative analysis among 348 owner-managers revealed that three domains constitute the heart of entrepreneurial competence in this small-firm context, namely: analysing, pursuing and networking. The newly proposed factor model challenges the original clustering by Man et al. (2002) and successfully passed multiple empirical validation tests. Analysing concerns the ability to analyse occupational core challenges, interpret them (think about their relative importance, their interrelationships and generalizability) and make inferences (make predications based on trends, conditions and tendencies for instance) to translate them into goals and strategies. The pursuing domain involves taking initiative and being proactive. It concerns being proactive in two different situations, namely, proactive in searching for new opportunities as well as proactive in current management practices. The networking domain represents social competence in relation to the entrepreneurial task. It concerns social competence on two levels: firstly being responsive, persuasive and able to adjust to others, and, secondly, being able to cooperate with other entrepreneurs and being open to feedback and suggestions from others. Typical meta-cognitive competencies did not constitute a separate domain but were integrated within both the analysing and networking domains. The results indicate that the three domains correlate to opportunistic small business owner-managers based on the classic craftsmen-opportunistic entrepreneurship dichotomy.

The developed framework of entrepreneurial competence in Chapter 3 appears to be conceptually solid but reveals little about how entrepreneurial competence is used in practice and how it relates to performance. These domains appear to be subject to development but it is unclear how this development can be further specified. Therefore, in Chapter 4, the identified domains of entrepreneurial competence were integrated with organizational learning theory and related to firm-level outcomes of entrepreneurship. This resulted in the fourth research question: Q4). *How are entrepreneurial competence, its development, and entrepreneurial performance related in small agricultural firms?*

A multiple-source case study was conducted in which quantitative and qualitative data from 19 horticultural firms in the Netherlands were combined. Based on the differences between high- and low-performing firms, seven propositions were formulated on

the relationships between the owner-managers' competence, the development of this competence and entrepreneurial performance. The results indicate that the relationship between entrepreneurial performance and competence is influenced by business goals and the owner-managers' competence awareness. It is further proposed that entrepreneurial performance is correlated with the development of competence associated with the first phase of the identification and pursuit of an opportunity. Furthermore, the results suggest interdependence between existing competence and competence development within competence domains (horizontal development), and between competence domains (vertical development).

Chapter 5 addresses the work environment as a potential contributor to entrepreneurial learning. The concept of learning has traditionally been associated with formal education and training. However, the learning of owner-managers in small agricultural firms does not tend to be supported by formal education and training. Research from a work-related learning perspective shows that the work environment plays a crucial role in light of the possibilities it offers for learning and development. In this chapter, the role of the work environment in entrepreneurial learning, i.e. learning associated with the identification and pursuit of business opportunities, is investigated. Therefore, the final research question addressed in this thesis was: Q5). *Which factors in the work environment specifically contribute to the development of entrepreneurial competence?*

A qualitative study was conducted among a specific sample of 25 small business owner-managers in an innovative, successful sector in the Netherlands: greenhouse horticulture. In-depth, semi-structured interviews were held focusing on critical incidents as they arose around a pursued business opportunity. Four factors were identified as being crucial in the entrepreneurial learning process, namely, support and guidance, external interaction, internal communication and task characteristics. Furthermore, the results show that different types of business opportunities evoke different dynamics for entrepreneurial learning. Finally, the results suggest a two-layered interaction between learner and work environment. Entrepreneurial learning of the owner-manager is influenced by the work environment, which is in turn shaped/defined by the owner-manager.

Contributions to scientific literature and practice

The main findings of the empirical chapters contribute to the scientific literature in several ways. Firstly, this thesis contributes to the discussion about entrepreneurship in agriculture by introducing the opportunity concept from the general entrepreneurship literature. From this perspective, entrepreneurship involves a clear task for the owner-manager, namely, the identification and pursuit of business opportunities. Such a conceptualization helps to avoid the conceptual swamp of defining 'the' entrepreneur, and at the same time opens the door for scholars active in agriculture with a background in education, extension, sociology or psychology to contribute to entrepreneurship research on learning and cognition.

Secondly, the legacy of disintegrative and reductionist models of competence has moved researchers in the direction of applying more comprehensive approaches to competence to overcome the critiques; the problem of atomization and fragmentation was addressed by factor analysis, clustering competence-related statements into broader competence domains which specify meaningful dimensions of entrepreneurial competence. An empirically sound clustering resulting in a limited number of domains is not only interesting for practice, but also relevant for researchers involved in workplace learning as well as competence assessment. For researchers interested in the assessment of owner-managers' entrepreneurial competence, these domains can help to narrow down the potential number of skills and competencies since it is known that individuals are not capable of rating a large number of dimensions. Furthermore, the use of more dynamic, task-related measures for entrepreneurial competence as was done in the fourth empirical study opens up the possibility to study more specifically the complex relations between competence and performance.

Thirdly, this thesis contributes to entrepreneurial-learning research by adopting a work-related learning perspective, including social and task-related influences on entrepreneurial competence development. The outcomes show that the social environment of the owner-manager is a powerful element in fostering the learning process associated with the identification and pursuit of opportunities. The results also show that there are differences between owner-managers in the ways in which they employ their social competence. Moreover, perceptions of owner-managers differ in what they regard as affordances for learning and development. Insights like these contribute to our limited understanding of differences between novice and expert entrepreneurs and of how work-environment factors influence corporate or strategic entrepreneurship.

Further research should focus on improving validity of the developed constructs and testing the hypothesized relationships quantitatively. Finally, steppingstones for entrepreneurship education and training are given, which comprise developing competence-based curricula and learning-oriented assessments, as well as general ideas for developing learning environments that better reflect small-business dynamics.

Samenvatting

**Ondernemerscompetenties
in de land- en tuinbouw:
Karakterisering, identificatie,
ontwikkeling en de rol van
de werkomgeving**



De Nederlandse land- en tuinbouw heeft zich de afgelopen twee decennia gekenmerkt door groei, innovatie en diversificatie. Daarnaast heeft de sector in toenemende mate te maken met ingrijpende veranderingen, zoals internationalisering, liberalisering van markten, strengere milieuwet- en regelgeving, verhoogde aandacht voor voedselveiligheid, duurzaam ruimtegebruik en ketenmanagement. Ontwikkelingen waardoor ondernemerscompetenties steeds belangrijker worden om kansen te signaleren en deze verder te ontwikkelen voor het bedrijf van de toekomst. Ondernemerscompetenties verwijzen naar nieuwe trajecten voor groei, innovatie of diversificatie van het bedrijf en tegelijkertijd naar de bekwaamheid van de boer of tuinder, de eigenaar-manager van het bedrijf om dergelijke kansen te herkennen en verder te ontwikkelen.

Hoewel het competentieconcept als potentieel waardevol wordt gezien in de wetenschappelijke literatuur, heeft het concept te lijden onder theoretische ambiguïteit, gebrekkige empirische onderbouwing, een connotatie met fragmentatie en het negeren van de complexiteit van de werkcontext. Tegelijkertijd is er in de ondernemerschapsliteratuur relatief weinig aandacht voor: i) bedrijven die reeds (enige) jaren bestaan; ii) methoden om ondernemerscompetenties te onderzoeken en iii) sociale en taakgerelateerde factoren die van invloed zijn op de ontwikkeling van ondernemerscompetenties.

In dit proefschrift staat dan ook de vraag centraal hoe ondernemerscompetenties kunnen worden gekarakteriseerd en geïdentificeerd, hoe ze zich ontwikkelen en hoe ze verder ontwikkeld kunnen worden in een specifieke sector, namelijk de land- en tuinbouw. Om dit doel te kunnen realiseren is voor een brede invulling van het competentiebegrrip gekozen. In de onderzoekspraktijk betekent dit dat meerdere methodes worden gebruikt om het concept te bestuderen. De vier studies die hiervoor zijn opgezet zullen hieronder achtereenvolgens worden beschreven. Vervolgens zal ook aandacht worden besteed aan de bijdrage die dit proefschrift levert aan de wetenschappelijke literatuur en de praktijk.

Empirische studies

In hoofdstuk 1 worden de kernconcepten kort geïntroduceerd. In de eerste empirische studie (hoofdstuk 2) zijn twee aspecten van ondernemerscompetenties nader onderzocht, namelijk zelfbeoordeling en ontwikkelbaarheid. De volgende twee onderzoeksvragen staan in deze studie centraal: V1). *Hoe beoordelen eigenaar-managers van kleine bedrijven hun ondernemerscompetenties en hoe verhouden deze zelfbeoordelingen zich tot beoordelingen van relevante anderen in de werkomgeving?* V2). *In hoeverre percipiëren eigenaar-managers van kleine bedrijven hun ondernemerscompetenties als ontwikkelbaar en hoe verhouden deze eigen percepties zich tot de percepties van relevante anderen in de werkomgeving?*

Om deze twee onderzoeksvragen te kunnen beantwoorden is een beoordelingsprocedure voor ondernemerscompetenties ontwikkeld waarin zelfbeoordelingen zijn gekoppeld

aan beoordelingen van interne en externe beoordelaars. Uiteindelijk hebben 36 eigenaar-managers aan de beoordelingsprocedure deelgenomen. Een belangrijk verschil tussen wat in deze studie gevonden is en wat bekend is uit de literatuur is een onderschatting door eigenaar-managers van de eigen bekwaamheden. Ook gaven de eigenaar-managers aan dat ze voor zichzelf veel ondernemerscompetenties als verbeterbaar zien. De bijna consequente onderschatting van ondernemerscompetenties doet vermoeden dat veel wat geleerd is op dit terrein, impliciet is. Verder suggereerden de correlatiepatronen dat de interne en externe beoordelaars bepaalde competenties anders beoordelen dan dat eigenaar-managers dat zelf doen. Hierbij lijken naast een ander inzicht in deze competentie, ook factoren als wenselijkheid en belangrijkheid van een bepaalde competentie in een bepaalde werkomgeving een rol te spelen.

De tweede empirische studie is beschreven in hoofdstuk 3. Deze studie concentreert zich op de kern van ondernemerscompetenties in de context van de land- en tuinbouw. Als vertrekpunt hiervoor is een bestaand competentiemodel voor ondernemers, dat zes domeinen omvat en beschreven is door Man et al. (2002), verder uitgewerkt en gevalideerd. De achterliggende onderzoeksvraag was dan ook: V3). *Zijn de zes competentiedomeinen voor ondernemers, zoals oorspronkelijk door Man et al. (2002) beschreven, ook betekenisvol in een empirische studie naar ondernemerscompetenties in de land- en tuinbouw?*

Een kwantitatieve analyse onder 348 eigenaar-managers liet zien dat drie nieuwe domeinen de kern vormden van ondernemerscompetenties in deze context, namelijk: analyseren, voortzetten en netwerken. Deze nieuwe indeling lijkt beter te passen bij de data dan het oorspronkelijke model van Man et al. (2002) en het model lijkt statistisch robuust te zijn. Bij 'analyseren' gaat het om het vermogen om belangrijke trends en ontwikkelingen in het vak te kunnen analyseren, ze te interpreteren (nadenken over de relatieve belangrijkheid, mogelijke relaties en generaliseerbaarheid) en daaruit conclusies te trekken (bijvoorbeeld door het doen van voorspellingen). Deze kunnen vervolgens vastgelegd worden in doelen en strategieën. Bij het domein 'voortzetten' gaat het om proactief zijn en het nemen van initiatief. Hierbij zijn twee situaties te onderscheiden, namelijk proactief zijn in het zoeken naar nieuwe kansen, alsmede het proactief zijn in de bestaande praktijk. Het domein 'netwerken' omvat met name sociale competenties in relatie tot de ondernemende taak. Het gaat hierbij enerzijds om overtuigend zijn, maar ook om het vermogen om je verhaal aan te passen aan anderen. Anderzijds gaat het om samenwerken met andere ondernemers en het open staan voor feedback en suggesties. Opvallend was dat typische meta-competenties niet een aparte groep vormden, maar geïntegreerd werden in de domeinen 'analyseren' en 'netwerken'. Tenslotte correleerden alle drie de domeinen positief met een oriëntatie van een eigenaar-manager die gericht is op kansen en niet zozeer op vakmanschap.

Hoewel het nieuw ontwikkelde model empirisch en conceptueel solide is, zegt het weinig over hoe ondernemerscompetenties gebruikt en ontwikkeld worden in de praktijk en of er een relatie is met de bedrijfsprestatie. Daarom zijn in hoofdstuk 4 de drie beschreven

domeinen verder uitgewerkt en geïntegreerd met literatuur op het terrein van 'leren van organisaties'. Tevens is er een link gelegd met indicatoren voor ondernemende prestaties op bedrijfsniveau. Dit heeft geresulteerd in de vierde onderzoeksvraag, namelijk V4). *Hoe zijn ondernemerscompetenties, hun ontwikkeling en ondernemende prestaties op bedrijfsniveau aan elkaar gerelateerd in land- en tuinbouwbedrijven?*

Deze onderzoeksvraag is onderzocht door middel van een case-study-benadering onder negentien glastuinbouwbedrijven, waarin kwalitatieve en kwantitatieve data zijn gecombineerd. Op basis van verschillen tussen hoog- en laagpresterende bedrijven zijn vervolgens zeven proposities geformuleerd die de complexe relatie tussen ondernemerscompetenties van de eigenaar-manager, de ontwikkeling van deze competenties en ondernemende bedrijfsprestaties verder specificeren. Hieruit bleek dat de relatie tussen competentie en ondernemende bedrijfsprestaties wordt beïnvloed door gestelde bedrijfsdoelen en het competentiebewustzijn van de eigenaar-manager. Verder is de hypothese geponeerd dat competentieontwikkeling met bedrijfsprestaties gecorreleerd zijn in de eerste fase van het zien en ontwikkelen van kansen. Tenslotte suggereerden de data een tweezijdige relatie tussen reeds aanwezige competenties en competentieontwikkeling binnen een competentiedomein (horizontale ontwikkeling), evenals een relatie tussen de ontwikkeling van competenties in het ene domein en competentieontwikkeling in een ander domein (verticale ontwikkeling).

Hoofdstuk 5, tenslotte, gaat in op de rol die de werkomgeving speelt in ondernemend leren. Leren als concept wordt traditioneel in verband gebracht met formeel leren op school en door trainingen. Echter, het merendeel van de eigenaar-managers in de land- en tuinbouw leert buiten de muren van de formele opleidingsinstituten. Uit onderzoek naar werkgerelateerd leren blijkt dat de werkomgeving een belangrijk rol kan spelen in termen van mogelijkheden die het biedt om leren en ontwikkelen te bevorderen. In dit hoofdstuk is daarom specifiek gekeken naar de rol van de werkomgeving in het leren dat verbonden is met het zien en ontwikkelen van nieuwe kansen voor het bedrijf. De laatste onderzoeksvraag luidt dan ook als volgt: V5). *Welke factoren in de werkomgeving dragen specifiek bij aan de ontwikkeling van ondernemerscompetenties?*

Deze studie is uitgevoerd door middel van een geselecteerde steekproef van 25 eigenaar-managers die actief zijn in de Nederlandse glastuinbouw. Met semi-gestructureerde diepte-interviews zijn kritieke momenten rondom het zien en ontwikkelen van nieuwe bedrijfskansen in detail onderzocht. Uit de kwalitatieve analyse bleek dat vier factoren cruciaal zijn in dit leerproces, namelijk ondersteuning en begeleiding, externe interactie, interne communicatie en taakgerelateerde karakteristieken. Verder laten de resultaten zien dat verschillende typen kansen die zich voordoen ook verschillende typen van leren met zich meebrengen. Tenslotte laten de interviews zien dat er een wederkerige relatie is tussen de lerende en de werkomgeving. Ondernemend leren door de eigenaar-manager wordt beïnvloed door de werkomgeving, die op haar beurt weer gedefinieerd en gevormd wordt door de eigenaar-manager zelf.

Bijdrage aan wetenschap en praktijk

De bevindingen uit de empirische hoofdstukken dragen op verschillende vlakken bij aan de huidige wetenschappelijke literatuur. Door de introductie van een procesdefinitie van ondernemerschap, namelijk het zien en ontwikkelen van kansen, draagt dit proefschrift allereerst bij aan de discussie over ondernemerschap in de agrarische wetenschappelijke literatuur. Vanuit een dergelijk perspectief gaat het bij ondernemerschap om een concrete taak voor de eigenaar-manager, naast allerlei andere relevante taken (management of technisch/vakmatig). Een dergelijke conceptualisatie voorkomt eindeloze discussies over 'wie' nu een ondernemer is en biedt mogelijkheden voor onderzoekers met een onderwijskundige, voorlichtingskundige, sociologische of psychologische achtergrond om bij te dragen aan de wetenschappelijke discours rondom ondernemerschap.

Ten tweede draagt dit proefschrift bij aan de zoektocht naar bredere opvattingen van het competentiebegrrip door het begrip niet te reduceren tot eindeloze lijsten van benodigde kennis, vaardigheden en houdingen. Door gebruik te maken van factoranalyse is getracht om te komen tot betekenisvolle domeinen van competenties in een bepaalde sector. Dergelijke brede domeinen zijn niet alleen interessant voor de praktijk (bijvoorbeeld bij het ontwerp van competentieprofielen), maar ook voor onderzoekers die geïnteresseerd zijn in leren op de werkplek en competentiebeoordeling. Immers, een beperkte en betekenisvolle set van competenties is makkelijker te bestuderen, te behappen en te beoordelen. Door gebruik te maken van een dynamische en taakgerelateerde operationalisatie van het competentiebegrrip is het mogelijk om grip te krijgen op de relatie tussen competentie en prestatie.

Ten derde draagt dit proefschrift bij aan het onderzoeksterrein dat zich bezighoudt met ondernemend leren, namelijk door de werkomgeving als leeromgeving te beschouwen. De resultaten laten zien dat de sociale omgeving een belangrijke rol speelt in ondernemende leerprocessen. Ook laten de resultaten zien dat er vele manieren zijn waarop eigenaar-managers hun sociale competentie inzetten. Verder verschillen percepties van eigenaar-managers nogal waar het gaat om de leermogelijkheden die de werkomgeving biedt. Dergelijke inzichten leveren een belangrijke bijdrage aan de beperkte kennis die er tot dusver is over de verschillen tussen beginnende en expert-ondernemers en hoe de werkomgeving van invloed is op ondernemerschap binnen grote bedrijven.

Tenslotte worden in het laatste deel van het proefschrift suggesties gegeven voor toekomstig onderzoek en voor ondernemerschapsonderwijs en -training. Toekomstig wetenschappelijk onderzoek dient de validiteit van de ontwikkelde constructen te verbeteren en de geobserveerde relaties kwantitatief te testen. De suggesties voor ondernemerschapsonderwijs en -training concentreren zich op de ontwikkeling van competentiegerichte curricula, beoordelingsvormen gericht op leren en de ontwikkeling van leeromgevingen die meer rechtdoen aan de dynamiek van het leren in kleine bedrijven.

Acknowledgements (Dankwoord)



De kiemende boon op de omslag, voor de oplettende lezer afkomstig uit het biologieboek van vele jaren geleden, past perfect bij het promotietraject zoals ik dat beleefd heb. Zowel letterlijk als figuurlijk. Als ‘plantkundige’ kwam ik namelijk met een heel klein beetje onderwijskundige bagage in het jaar 2000 terecht bij de toenmalige leerstoelgroep Onderwijskunde. Daar kreeg ik de kans om als student een, inmiddels derde, afstudeerproject te doen op het terrein van competentieontwikkeling rondom innovaties in de glastuinbouw. Omdat ik mezelf in eerste instantie niet als sociale wetenschapper zag maar als bèta, gaf ik mezelf 4 weken de tijd om een verantwoord onderzoeksvoorstel te schrijven. Als dit niets zou worden, dan, zo had ik besloten, ging mijn carrière alsnog in de richting van het (agraris)ch) bedrijfsleven of de voorlichting. Zowaar, het voorstel werd goedgekeurd, het voorstel werd een afstudeerproject, het afstudeerproject werd een tijdelijke baan, de baan werd een promotievoorstel en uiteindelijk werd de baan een vaste baan.

In de populaire media worden promotietrajecten soms afgeschilderd als eenzame trajecten, die zich afspelen in kleine donkere kamertjes vol boeken, hoog in ivoren torens ver weg van de praktijk. Mijn onderzoek voldeed in de verste verte niet aan dit beeld. Ik heb veel plezier beleefd aan de bedrijfsbezoeken, de discussies met collega’s, de trainingsavonden die ik gaf voor de Kamers van Koophandel, de vakken die ik in dit kader heb verzorgd voor WUR- studenten en het promovendi-overleg op vrijdagochtend op de Korenmarkt in Arnhem. Daarnaast is het eigenlijk onmogelijk om te promoveren zonder je sociale omgeving daar actief bij te betrekken. Enige woorden van dank zijn dan ook wel op zijn plaats.

Om te beginnen wil ik mijn promotor Martin bedanken. Martin, als jij mij in 2000 niet het vertrouwen had gegeven dat er een sociaal wetenschapper in mij zat, dan was ik hier nooit aan begonnen. Hoe vreemd mijn ideeën ook af en toe geklonken moeten hebben, jouw antwoord was steevast: “Ga het maar proberen, ik sta achter je”. Door zoveel ruimte te bieden voor eigen initiatief, heb ik altijd met zeer veel plezier gewerkt bij de leerstoelgroep. Ik hoop dit ook in de toekomst te blijven doen.

Ten tweede Jos, jij was al mijn scriptiebegeleider vanuit het LEI toen ik nog student was aan de WU. Jij hebt al mijn stappen van student naar medewerker naar promovendus meegemaakt. Mijn dank is groot voor het vertrouwen dat je altijd in mij hebt gehad en voor de waardevolle adviezen die je gaf als ik weer eens de boer op ging. Onze samenwerking gaat verder dan dit proefschrift. Ook in andere projecten heb ik met veel plezier met je samengewerkt, variërend van workshops voor ondernemers op de ‘dag van de toekomst’ tot wetenschappelijke projecten.

Ten derde Harm. Harm, jij bent iemand die houdt van degelijke onderzoekszetters, scherpe onderzoeksvragen en afbakening. Geen wollige epistels, maar gewoon: wat ga je onderzoeken en hoe heb je dat gedaan? Onderzoek zoals onderzoek, ook in mijn ogen, hoort te zijn. Bedankt voor je waardevolle adviezen op het terrein van de leerpsychologie –een fantastisch vakgebied– en het zelfvertrouwen dat je me hebt gegeven om te slagen in een geheel nieuw domein.

Renate, de afgelopen acht jaar ben je (bijna) onafgebroken mijn kamergenoot geweest. De kamer 4023 (later 4016) humor was niet de humor die bij iedereen even goed paste, maar bij mij paste die fantastisch. Naast de gezelligheid zijn er ook heel wat discussies geweest over begrippen, de richting van de leerstoelgroep en andere zaken waar wij ons als betrokken medewerkers druk om maakten. Dat zijn zeer waardevolle momenten geweest voor dit proefschrift.

Educatie- en competentiestudies was en is in het kort een geweldige plek om te werken. Ik wil alle andere (oud-)collega's van ECS dan ook bedanken voor de goede sfeer en de gezelligheid. Hendrik, Judith en Elise, jullie in het bijzonder bedankt voor de inhoudelijke feedback en discussies rondom de stukken waar ik aan werkte.

Van buiten de groep zou ik graag de leden van de promotiecommissie willen bedanken voor het beoordelen van dit proefschrift. Daarnaast wil ik de actieve leden van Waeghals, later ook het Dafne-netwerk, noemen voor de inspirerende discussies en de mogelijkheden die deze platforms hebben geboden om ondernemerschap verder vorm te geven binnen het groene hoger onderwijs. Ook zijn er nog een aantal personen die vanuit een iets andere hoek een bijzondere bijdrage hebben geleverd aan dit proefschrift. Ten eerste zijn dat Piet en Dick van Aequor en Kees en Johan (toen nog) van LTO groeiservice. Dankzij jullie goede netwerk en het belangeloos beschikbaar stellen van jullie contacten, was het mogelijk om al die bedrijven te kunnen bezoeken. Ten tweede Ron, Michiel en de medewerkers van het Bedrijven-Informatienet van het LEI. Jullie hebben je nek uitgestoken voor dit project, met ons gediscussieerd over de begrippen en geholpen met het vinden van de juiste prestatie-indicatoren. Dat had ik zonder jullie hulp nooit voor elkaar gekregen. Herman en Pieter van Praktijkonderzoek Plant en Omgeving: fijn dat we met jullie konden meeliften op het PlattelandImpuls-project, dat heeft een schat aan informatie opgeleverd. Dan is er ook nog zoiets als statistiek. Hoewel ik met mijn technische achtergrond wel iets gewend was, is het werken met LISREL een klus die ik zonder jouw hulp, Ivo, niet had kunnen klaren. Voor wat betreft de puntjes op i, many thanks to the three Catherine's. Catherine, Catharina and Kate, your comments were very helpful. Renate en Kitty: opmaken en ontwerpen is inderdaad een vak apart.

Verder nog een woord van waardering voor de belangrijkste actoren in dit onderzoek, alle bedrijven die aan dit onderzoek hebben meegewerkt. Ik ben elke keer met zeer veel plezier door Nederland gereden om de meest inspirerende bedrijfseigenaren te bezoeken. Ik zal er alles aan doen om de resultaten van dit promotieonderzoek weer terug te investeren in de land- en tuinbouw. Voor een deel is dit hopelijk al gelukt via de cursussen, de ondernemersgame, de on-line assessments en de terugkoppelingsgesprekken die we hebben gehouden.

Tenslotte wil ik nog mijn ouders, Simone en Thijs bedanken. Het was het afgelopen jaar bepaald niet makkelijk. Ondanks de tegenslagen in het begin van dit jaar lijkt 2009 toch nog een gouden randje te krijgen, niet alleen met dit proefschrift, maar ook op andere terreinen. Lieve Gertrude, twee promovendi in één huis die allebei hun 'boekje'

afronden, dat moet haast wel tot problemen leiden (niet te vergeten tot een huishouden van Jan Steen). Dit is echter niet gebeurd. We hebben het gered en gaan volgend jaar een verschrikkelijk spannend, maar interessant jaar tegemoet. Bedankt voor al je vrolijkheid, steun en je rol als klankbord als het allemaal even wat minder ging.

Terugkijkend denk ik dat de symbolische boon echt gekiemd is. Het is nu de kunst om een omgeving te creëren waarin voldoende zonlicht en voedingstoffen aanwezig zijn om het plantje verder te laten uitgroeien tot een volwassen plant waar de vruchten van geplukt kunnen worden!

A handwritten signature in black ink that reads "Thomas". The signature is written in a cursive style with a long horizontal line underneath the name.

About the author



Curriculum vitae

Thomas Lans was born on April 15, 1977, in Amersfoort, the Netherlands, but grew up in the eastern part of the Netherlands. After secondary school he started to study plant breeding and crop protection (plant sciences) at Wageningen University with a special interest in education and training in horticulture. After two technical oriented theses, one conducted in South Africa, he developed his competence in the field of educational sciences further in a six months thesis project on the role of corporate training in strategic innovations in the greenhouse sector. He graduated in March 2001 at Wageningen University and worked from June 2001 until the end of 2004 as a junior researcher at the group of Education and Competence studies (ECS) of Wageningen University. The two main projects he was involved in were Brainport, commissioned by the Dutch Ministry of Agriculture, Nature and Food Quality (LNV), and the project ILE (inspiring learning environments for entrepreneurs, commissioned by the Innovation Network). The Brainport project was initiated to put lifelong learning for the agri-food sector into practice in terms of the development of long-term learning trajectories. The ILE project was conducted with the primary aim to strengthen learning and innovation competence of entrepreneurs in horticulture.

In 2003 he considered becoming a part-time PhD student at the ECS group on the topic of entrepreneurial competence in agriculture. He wrote his first paper on this theme in 2004. In 2005, an official research proposal was approved and he was admitted as a PhD student to the Mansholt Graduate School of Social Sciences (MG3S) of Wageningen University.

Concurrently with his PhD studies, from 2005 to 2007 he worked as a project leader in a large scale policy support programme on knowledge circulation and knowledge transfer between agricultural education and research. From 2007 on his work became more and more focussed towards entrepreneurial learning and learning for and through entrepreneurship. He was part of a project team which aimed at stimulating learning and working in horticulture (part of the national learning and working program) in which good practices of learning organizations in the agri-food sector were portrayed and new networks were established. Furthermore, he became a member of WAEGHALS, the Wageningen Entrepreneurial Group on Health, Agri-food & Life Sciences, and from 2008 one of the project leaders in DAFNE, the Dutch Agro-Food Network of Entrepreneurship, one of the entrepreneurship centres in the Netherlands. Under this umbrella, a new course with the primary aim to foster the entrepreneurial spirit of MSc students of Wageningen University was developed.

At present Thomas is an assistant professor providing mainly courses in the field of entrepreneurial learning, human resource development (HRD) and human resource management (HRM). His research activities involve two new research projects. One project is aimed at studying the dynamics and robustness of multifunctional farming in the Netherlands. This project, managed by the Rural Sociology group from Wageningen University, also investigates learning and development issues of innovative farmers,

in particular in the context of a variety of multifunctional agricultural practices. The second project is a research project aimed at developing new indicators for measuring entrepreneurial activity quantitatively in order to gain better understanding of the transition of farmers towards new practices. This multi-disciplinary project is under the supervision of the Marketing and Consumer Behaviour Group from Wageningen University.

As an enterprising individual himself, Thomas Lans is also starting up his own company together with business partner Leonoor, a former colleague. The new venture –Quente: learning for living– aims at strengthening entrepreneurship education across borders. The company's activities include the design of new learning environments, monitoring and evaluation, as well as the development of intakes and assessments. Currently Quente is preparing projects in Moldavia, Surinam and the Netherlands.

Key publications (in chronological order)

Scientific, peer reviewed publications

- Lans, T., Wesselink, R., Biemans, H.J.A., & Mulder, M. (2004). Work-related lifelong learning for entrepreneurs in the agri-food sector. *International Journal of Training and Development*, 8, 72-88.
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- Mulder, M., Lans, T., Verstegen, J., Biemans, H., & Meijer, Y. (2007). Competence development of entrepreneurs in innovative horticulture. *Journal of Workplace Learning*, 19(1), 32-44.
- Lans, T., Biemans, H., Verstegen, J., & Mulder, M. (2008). The influence of the work environment on entrepreneurial learning of small-business owners. *Management Learning*, 39(5), 597-613.
- Lans, T., Hulsink, W., Baert, H., & Mulder, M. (2008). Entrepreneurship education and training in a small business context: Insights from the competence-based approach. *Journal of Enterprising Culture*, 16(4), 363-83.

Professional publications (selection)

- Lans, T. (2002). Strategische uitdagingen voor de glastuinbouw. *Vakblad Groen Onderwijs*, 44(1), 26-29.
- Lans, T., & Wesselink, R. (2003). De rol van informeel leren bij de ontwikkeling van werknemers. *Gemeentelijk Personeelsbeleid*, 47, 1-10.
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- Lans, T., Kupper, H., & Wals, A. (2005). Onderzoek en expertconsultatie Wageningen UR. *Intellectueel Kapitaal*, 4, 16-20.
- Lans, T., Kupper, H., Wals, A.E.J., de Beuze, M., & Geerling-Eijff, F. (2006). *Alles is kennis?* Wageningen: Wageningen University and Research Centre.

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- Kupper, H., Lans, T., & Wals, A. (2007). Kennismaken met beroepsonderwijs. Arrangementen van onderwijs, onderzoek en ondernemingen in voedsel en groen. In: M. Popkema, P. Wilhelm & K. Boersma. *Onderwijs in de kennissamenleving, Jaarboek Kennissamenleving* (pp. 214-245). Amsterdam: Aksant.

Invited lectures (selection)

- Lans, T. (2005). Ondernemerschap, competenties en competentieontwikkeling. Vlaams Instituut voor Zelfstandig Ondernemen (Syntra Vlaanderen), Brussels. June, 2005.
- Lans, T. (2006). Competenties, ondernemerschap en competentieontwikkeling. LTO Groeiservice, Rijswijk. October, 2006.
- Lans, T. (2006/2007). Competencies of entrepreneurs in agribusiness: learning and development. CEDEFOP study visit, Wageningen, May 2006/2007.
- Lans, T. (2007/2008/2009). Ondernemerschap in de Boomkwekerij en Glastuinbouw, Kamers van Koophandel.

Scientific awards

- 2008, Outstanding Paper Award of the Journal of Workplace Learning
- 2008, Vinus Zachariasse Research Encouragement Prize for Social Sciences

Completed Training Plan



Description	Institute / Department	Year	ECTS*
Courses			
Zorgen voor Leren	Personeelwetenschappen - Universiteit van Tilburg	2004	0.5
Research Methodology: Designing and conducting a PhD research project	Mansholt Graduate School (MG3S)	2005	2.8
Teaching and Supervising thesis students	Educational Staff development group	2005	1
Mansholt Introduction course	MG3S	2005	1.5
Organisational Learning	European Doctoral School on Knowledge and Management (EUDOKMA)	2005	6
Quantitative Research Methods	MG3S	2006	4
EDEN Doctoral Seminar on methods, techniques and theories in entrepreneurship & innovation	European Institute for Advanced Studies in Management (EIASM)	2007	4
EDEN Doctoral Tutorial 1 on Entrepreneurship & Innovation	EIASM	2008	2
Study Visit Entrepreneurship & Education	European Centre for the Development of Vocational Training (CEDEFOP)	2008	1.5
Field Research Methods: Methods and Tools for Qualitative Data Analysis	MG3S	2008	1.5
Teaching and supervising activities	Wageningen University	2005-2009	4
Assessment & Testinterpretatie	Meurs	2009	0.5
Presentations at conferences and workshops			
Onderwijs Research Dagen (ORD), Ghent, Belgium.		2005	1
Conference on Business Economics, Management and Organization Science, Amersfoort, the Netherlands		2005	1
Research in entrepreneurship and small business studies (RENT) conference, Brussels, Belgium		2006	1
American Educational Research Association (AERA) Annual Meeting, Chicago, US		2007	1
Research in entrepreneurship and small business studies (RENT) conference, Cardiff, UK		2007	1
Mansholt Multidisciplinary seminar, Wageningen, the Netherlands		2007	1
Total (minimum 30 ECTS)			35.3

* One ECTS on average is equivalent to 28 hours of course work.

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