

Searching for entrepreneurs among small business owner-managers

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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 entrepreneurship education 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 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 firms from a specific industry 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

Small firms, employing less than 50 persons, are important contributors to employment and economic growth of the European Union (Audretsch et al., 2009). Small firms have to anticipate increasingly to competition, new markets, new demands, new rules and regulations (Gray, 2002). What is entrepreneurialism in existing small firms, and how is it learned and developed over time? Entrepreneurialism in small firms is often equated with a particular role or style of the owner-manager which focuses on gaining profit, efficiency, specialization, expansion and optimization of management. 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). Through these processes small business owner-managers 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 owner-managers seem to be quite successful in developing themselves as 'entrepreneurs' as conceptualized above, for instance through diversification (starting new or complementary

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firms) or innovation. However, it is not clear what they have learned in this process and whether this learning is indeed related to increased performance. In other words, how are entrepreneurial competence, its development and entrepreneurial performance related in small 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 existing small firms.

This paper 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). Recent meta-analysis from Rauch and Frese (2007) and Zhao and colleagues (2010) show that the effect sizes of traits in explaining entrepreneurial success remain small to moderate (between .09 and .30). Of the general Big-Five personality constructs, openness to experience as well as conscientiousness were found to be mostly related to entrepreneurial intentions and performance (Zhao, et al. 2010). Nonetheless, trait-approaches have been heavily criticized throughout the last decades and influential scholars in the field have questioned whether this research tradition would lead to a better understanding of entrepreneurial behaviour given the generic nature of traits (Gartner, 1989). 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 assumed to be 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., 2006; Cheetham & Chivers, 1996; Hager, 2004; McMullan et al., 2003; Sandberg, 2000; Velde, 1999). 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 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 (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 (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, 2007; 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). 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

(Bergeroet et al., 2004; Baum & Locke, 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 acquisition of additional small businesses 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 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 an industry 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 originally describe by Man et al. (2002) and further elaborated by Lans et al. (accepted) for this specific industry. This model describes three competence domains, which explained almost 40 percent of the variation from a wide variety of entrepreneurial competencies measured among 348 small business owners in agriculture. These three domains were elaborated in the current study based on organizational learning theory and additional research on competence in entrepreneurship.

Table 1 Overview of the competence domains studied, with the related activities which were measured

Original domain (Lans et al. accepted)	Related activities which demonstrate competence	Corresponding author(s)
Analysing	<ul style="list-style-type: none"> ▪ Analysis of alternative situations ▪ Evaluation of opportunity 	Detienne & Chandler (2004); Mitchell et al. (2000); Zietsma et al. (2002); Jones & Macpherson (2006)
Networking	<ul style="list-style-type: none"> ▪ Contact with alternative views ▪ Assessing what others find important ▪ Integration of others' ideas ▪ Using inter-organizational relationships 	Baron & Markman (2003); Jones & Macpherson (2006)
Pursuing	<ul style="list-style-type: none"> ▪ Active search ▪ Experimentation ▪ Implementation 	Mitchell et al. (2000); Markman & Baron (2003), Zietsma et al., (2002); Jones & Macpherson (2006)

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

Table 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
Focosco	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, Focosco 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 Warnia 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 3). The owners of the firms Daisy, Armada and Roma 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 2 with 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.

Table 3 Overview of entrepreneurial outcome 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 Gap 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).

Propositions specifying the underlying relationships

Table 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 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 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 and 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.

Table 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.

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 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 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 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 and 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 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), 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 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 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 1 provides an overview of the propositions.

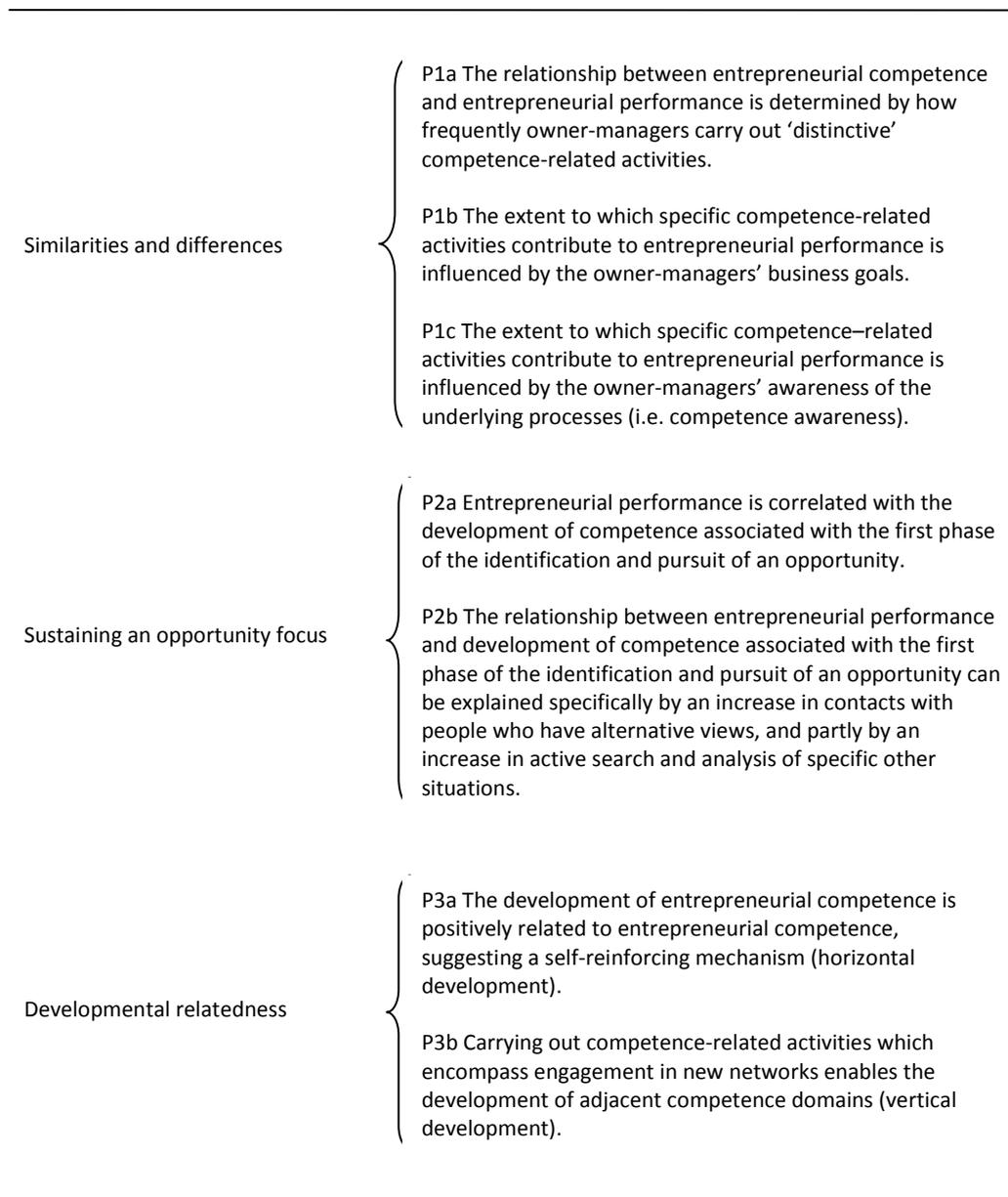


Figure 1 Proposed refinements of the relationships between entrepreneurial performance, entrepreneurial competence and competence development

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 firms managed by a team, 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, father 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., 2003). 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 practice

The results have interesting implications for 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 (Verstegen & DeLauwere, 2009; Wielinga & Vrolijk, 2009).

References

- Audretsch, D., Van der Horst, R., Kwaak, T., & Thurik, R. (2009). *First section of the annual report on EU Small and Medium-sized Enterprises*. Zoetermeer: EIM Business & Policy Research
- Baron, R. A., & Markman, G. D. (2003). Beyond social capital: the role of entrepreneurs' social competence in their financial success. *Journal of Business Venturing*, 18, 41-60.
- Baron, R. A., & Tang, J. (2009). Entrepreneurs' Social Skills and New Venture Performance: Mediating Mechanisms and Cultural Generality. *Journal of Management*, 35(2), 282-306.
- Baum, R.J., & Locke, E.A. (2004). The relationship of entrepreneurial traits, skill, and motivation subsequent venture growth. *Journal of Applied Psychology*, 89(4),587-598.
- Baum, J. R., Locke, E. A., & Smith, K. G. (2001). A Multidimensional Model of Venture Growth. *The Academy of Management Journal*, 44(2), 292-303.
- Becker, G. S. (1964). *Human Capital: a Theoretical and Empirical Analysis, With a Special Reference to Education*. New York: Columbia University Press.

- Begley, T. M., & Boyd, D. P. (1987). Psychological characteristics associated with performance in entrepreneurial firms and smaller businesses. *Journal of Business Venturing*, 2(1), 79-93.
- Bergevoet, R.H.M., Ondersteijn, C.J.M., Saatkamp, H.W., van Woerkum, C.M.J., & R.B.M Huirne (2004). Entrepreneurial behaviour of Dutch dairy farmers under a milk quota system: Goals, objectives and attitudes. *Agricultural Systems*, 80, 1-21.
- Bird, B. (1995). Toward a theory of entrepreneurial competency. *Advances in Entrepreneurship Firm Emergence, and Growth*, 2, 52-72.
- Bolden, R. & J. Gosling (2006). Leadership competencies: Time to change the tune? *Leadership*, 2, 147-163.
- Boyatzis, R.E. (1982). *The competent manager*. New York: John Wiley & Sons.
- Capaldo, G., Iandoli, L., & Zollo, G. (2006). A situationalist perspective to competency management. *Human Resource Management*, 45(3), 429-448.
- Chandler, G. N., & Jansen, E. (1992). The founder's self-assessed competence and venture performance. *Journal of Business Venturing*, 7(3), 223-236.
- Charney, A. & Libecap, G.D. (2000). The Impact of Entrepreneurship Education: An Evaluation of the Berger Entrepreneurship Program at the University of Arizona, 1985-1999. Available at SSRN: <http://ssrn.com/abstract=1262343>
- Cheetham, G., & Chivers, G. (1996). Towards a holistic model of professional competence. *Journal of European Industrial Training*, 20, 20-30.
- Colombo, M. G., & Grilli, L. (2005). Founders' human capital and the growth of new technology-based firms: A competence-based view. *Research Policy*, 34(6), 795-816.
- Crossan, M. M., Lane, H. W., & White, R. E. (1999). An Organizational Learning Framework: From Intuition to Institution. *The Academy of Management Review*, 24(3), 522-537.
- Davidsson, P. (2006). Nascent Entrepreneurship: Empirical Studies and Developments. *Foundations and Trends in Entrepreneurship Theory and Practice*, 2(1), 1-76.
- Davidsson, P. (2007). Method challenges and opportunities in the psychological study of entrepreneurship. In J.R. Baum, M. Frese & R. Baron (Eds.). *The psychology of entrepreneurship, SIOP organisational frontier series* (pp. 287-324). New Jersey: Lawrence Erlbaum.
- Denzin, N.K. (1990). Triangulation. In H.J. Walberg & G.D. Haertel (Eds.), *The international encyclopedia of educational evaluation* (pp. 592-594). New-York: Pergamon Press.
- Detienne, D.R., & Chandler, G.N. (2004). Opportunity identification and its role in the entrepreneurial classroom: A pedagogical approach and empirical Test. *Academy of Management Learning and Education*, 3(3), 242-257.
- Dimov, D. (2007). From Opportunity Insight to Opportunity Intention: The Importance of Person-Situation Learning Match. *Entrepreneurship Theory and Practice*, 31(4), 561-583.
- Drakopoulou Dodd, S. & Anderson, A.R. (2007). Mumpsimus and the mything of the individualistic entrepreneur. *International Small Business Journal*, 25, 341-360.

- Dutta, D. K., & Crossan, M. M. (2005). The Nature of Entrepreneurial Opportunities: Understanding the Process Using the 4I Organizational Learning Framework. *Entrepreneurship Theory and Practice*, 29, 425-449.
- Dyer, J. H., Gregersen, H. B., & Christensen, C. (2008). Entrepreneur behaviors, opportunity recognition, and the origins of innovative ventures. *Strategic Entrepreneurship Journal*, 2(4), 317-338.
- Gartner, W.B., (1989). Who is an entrepreneur? Is the wrong question. *Entrepreneurship Theory & Practice*, 13(4), 47-68.
- Gibb, A. (2002). Creating conducive environments for learning and entrepreneurship: living with, dealing with, creating and enjoying uncertainty and complexity. *Industry and Higher Education*, 16, 135-148.
- Gray, C. (2002). Entrepreneurship, resistance to change and growth in small firms. *Journal of Small Business and Enterprise Development*, 9, 61-72.
- Hager, P. (2004). The competence affair, or why vocational education and training urgently needs a new understanding of learning. *Journal of Vocational Education and Training*, 56, 409-433.
- Jones, O., & Macpherson, A. (2006). Inter-Organizational Learning and Strategic Renewal in SMEs: Extending the 4I Framework. *Long Range Planning*, 39(2), 155-175.
- Lans, T., Verstegen, J.A.A.M. and Mulder, M. (accepted). Analysing, pursuing and networking: towards a validated three-factor framework for entrepreneurial competence from a small-firm perspective. *International Small Business Journal*
- Macpherson, A., & Holt, R. (2007). Knowledge, learning and small firm growth: A systematic review of the evidence. *Research Policy*, 36, 172-92.
- Man, T. W. Y., & Lau, T. (2005). The context of entrepreneurship in Hong Kong: An investigation through the patterns of entrepreneurial competencies in contrasting industrial environments. *Journal of Small Business and Enterprise Development*, 12, 464-481.
- Man, T. W. Y., Lau, T., & Chan, K. F. (2002). The competitiveness of small and medium enterprises: A conceptualization with focus on entrepreneurial competencies. *Journal of Business Venturing*, 17(2), 123-142.
- Maurer, T. J., Wrenn, K. A., Pierce, H. R., Tross, S. A., & Collins, W. C. (2003). Beliefs about improvability of career-relevant skills: relevance to job/task analysis, competency modelling, and learning orientation. *Journal of Organizational Behavior*, 24(1), 107-131.
- McClelland, D.C. (1967). *The achieving society*. New York: First Free Press.
- McClelland, D.C. (1987). Characteristics of successful entrepreneurs. *The Journal of Creative Behaviour*, 21, 219-233.
- McMullan, M., Endacott, R., Gray, M.A., Jasper, M., Miller, C.M.L., Scholes, J. & Webb, C. (2003). Portfolio and assessment of competence: A review of literature. *Journal of advanced nursing*, 41, 283-294.
- Mitchell, R.K., Smith, B., Seawright, K.W. & Morse, E.A. (2000). Cross-cultural cognitions and the venture creation decision. *The Academy of Management Journal*, 43(5), 974-993.

- Mulder, M. (2001). Competence development - some background thoughts. *The Journal of Agricultural Education and Extension*, 7(4), 147 - 158.
- Mulder, M., Gulikers, J., Biemans, H., & Wesselink, R. (in press). The new competence concept in higher education: error or enrichment? *Journal of European Industrial Training*, 33(8/9).
- Murphy, G.B., Trailer, J.W., & Hill, J.C. (1996). Measuring performance in entrepreneurship research. *Journal of Business Research*, 36, 15-23.
- Nuthall, P. L. (2006). Determining the important management skill competencies: The case of family farm business in New Zealand. *Agricultural Systems*, 88(2-3), 429-450.
- Rae, D. (2006). Entrepreneurial learning: A conceptual framework for technology-based enterprise. *Technology Analysis & Strategic Management*, 18(1), 39-56.
- Rae, D. (2007). Achieving business focus Promoting the entrepreneurial management capabilities of owner-managers. *Industry and Higher Education*, 21, 415-426.
- Rauch, A. Frese, M., & Utsch, A. (2005). Effects of human capital and long-term human resources development and utilization on employment growth of small-scale businesses: A causal analysis. *Entrepreneurship Theory and Practice*, 29, 681-698.
- Rauch, A., & Frese, M. (2007). Born to be an entrepreneur? Revisiting the personality approach to entrepreneurship. In J. R. Baum, M. Frese & R. A. Baron (Eds.), *The psychology of entrepreneurship* (pp. 41-65). New Jersey: Lawrence Erlbaum.
- Sadler-Smith, E., Hampson, Y. Chaston, I., & Badger, B. (2003). Managerial behaviour, entrepreneurial style, and small firm performance. *Journal of Small Business Management* 41: 47-67.
- Sandberg, J. (2000). Understanding Human Competence at Work: An Interpretative Approach. *The Academy of Management Journal*, 43(1), 9-25.
- Shane, S., & Venkataraman, S. (2000). The promise of entrepreneurship as a field of research. *The Academy of Management Review*, 25(1), 217-226.
- Skuras, D., Meccheri, N., Belo Moreira, M., Rosell, J., & S. Stathopoulou (2005). Entrepreneurial human capital accumulation and the growth of rural businesses: A four-country survey in mountainous and lagging areas of the European union. *Journal of Rural Studies*, 21, 67-79.
- Ucbasaran, D., Westhead, P., & Wright, M. (2008). Opportunity Identification and Pursuit: Does an Entrepreneur's Human Capital Matter? *Small Business Economics*, 30(2), 153-173.
- Velde, C. (1999). An alternative conception of competence: implications for vocational education. *Journal of Vocational Education and Training*, 51, 437-447.
- Verstegen, J.A.A.M., & De Lauwere, C.C. (2009). Crossing borders: a program evaluation of a group intervention and an individual intervention to improve the networking competence of entrepreneurs in agriculture. Working paper Wageningen University and Research Centre.
- Wielinga, E., & Vrolijk, M. (2009). Language and Tools for Networkers. *The Journal of Agricultural Education and Extension*, 15(2), 205 - 217.
- Zhao, H., Seibert, S. E., & Lumpkin, G. T. (2010). The Relationship of Personality to Entrepreneurial Intentions and Performance: A Meta-Analytic Review. *Journal of Management*, 36(2), 381-404.

Zietsma, C., Winn, M., Branzei, O., & Vertinsky, I. (2002). The War of the Woods: Facilitators and Impediments of Organizational Learning Processes. *British Journal of Management*, 13, S61-S74.