



**FACULTEIT ECONOMIE
EN BEDRIJFSKUNDE**

**TWEEKERKENSTRAAT 2
B-9000 GENT**
Tel. : 32 - (0)9 – 264.34.61
Fax. : 32 - (0)9 – 264.35.92

WORKING PAPER

An inquiry on the change profile of healthcare managers and entrepreneurs

Eva COOLS¹

Herman VAN DEN BROECK²

August 2007

2007/477

¹ Ghent University, Faculty of Economics and Business Administration and Vlerick Leuven Gent Management School.

² Ghent University, Faculty of Economics and Business Administration and Vlerick Leuven Gent Management School.

Abstract

The aim of this study was to investigate the extent to which people from two different sectors are 'armed' to deal effectively with change. Change is apparently the only constant factor in current work surroundings. A crucial issue to manage change professionally is coping with the involved uncertainty. The individual manager plays an important role in this regard, as successfully coping with change is strongly influenced by the psychological predispositions of the individual experiencing the change. We compared Flemish entrepreneurs and healthcare managers on four traits (locus of control, self-efficacy, tolerance for ambiguity, proactive personality) and on cognitive styles (*i.e.*, individual preferences for organising and processing information). Entrepreneurs ($n = 177$) scored significantly higher on all traits than healthcare managers ($n = 60$). Healthcare managers scored significantly higher on the knowing and planning style than entrepreneurs, but no significant differences were found for the creating style. With this study, we hope to enhance the knowledge about the influence of particular characteristics in organisational change processes and to give relevant insights to design effective change management programmes.

Keywords: change management, leadership, cognitive styles, micro-perspective

Introduction

Change is currently a considerable part of business life, both in the industrial and the healthcare sector. The business environment is characterised by an ever-increasing pace of change (Burke & Trahan, 2000). The effective management of change processes is a challenging job where many entrepreneurs and managers struggle with. To turn change into a success for the entire organisation, the individual manager has an important task (Tullett, 1996; Wickham, 2004). Obtaining commitment of all co-workers, the choice of the right project managers, developing the right coalitions are real challenges for business leaders.

The field of organisational change research has for a long time been dominated by a macro, systems-oriented focus (Clegg & Walsh, 2004). These macro-oriented studies examine the strategic adaptations of organisations to environmental changes or the processes and procedures that are used to implement organisational change processes (Romanelli & Tushman, 1994). However, the use of change programmes based on this macro-oriented perspective does not necessarily lead to successful organisational changes (Beer & Nohria, 2000). As researchers recognise the importance of people in making change efforts a success, they called for taking a more micro, person-oriented perspective in organisational change research (Vakola *et al.*, 2004; Wanberg & Banas, 2000). More specifically, every person has a distinct set of personality characteristics and uses different coping strategies to deal with change (Tiong, 2005). Research within this view shows that effectively coping with change is strongly influenced by the psychological predispositions of the individual experiencing the change (Judge *et al.*, 1999).

In line with the increased emphasis on the micro-oriented perspective, we aim to investigate the extent to which people from two different sectors are 'armed' to deal effectively with change. We compare Flemish entrepreneurs and healthcare managers on four traits (locus of control, self-efficacy, tolerance for ambiguity, proactive personality) and on their cognitive styles (*i.e.*, individual preferences for organising and processing information). Focusing on these two sectors gives this research project a unique dimension. As the healthcare sector is currently undergoing many changes (*e.g.*, increased complexity, budgetary pressure, more competition) (Vandenberghe, 1999), we are convinced that it is highly relevant to get insight in the change management profile of people who are employed in this sector. The profile of entrepreneurs, on the other hand, has already been studied extensively. Entrepreneurs are in many respects expected to have a different profile than other

types of managers due to the specificities of being an entrepreneur (Cromie, 2000; Vecchio, 2003). In general, entrepreneurs are considered to be more innovative, risk-taking, and proactive than other types of managers (Entrialgo *et al.*, 2000; Lumpkin & Erdogan, 2004), suggesting that they are currently better equipped to deal with organisational changes. Already in 1985, Drucker claimed that entrepreneurs see change as the norm. Entrepreneurs always search for change, respond to it, and exploit it as an opportunity.

Relevant factors in organisational change management

We integrate two different perspectives to assess people's change profile. On the one hand, we involve trait characteristics or dispositional factors that are considered to be relevant to cope with organisational change (Judge *et al.*, 1999). On the other hand, we focus on cognitive styles. Individual preferences for organising and processing information can play an important role in how people deal with the uncertainties that surround change processes (Hough & ogilvie, 2005; Leonard *et al.*, 1999; Sadler-Smith, 2004). To introduce the conceptual framework of the study and the resulting hypotheses, we subsequently focus on the trait and the cognitive approach.

The trait approach

Within the field of entrepreneurship research, many studies aim to identify the particular qualities of entrepreneurs (Bridge *et al.*, 2003). There is substantial literature on those traits that purport to predispose individuals to behave in an entrepreneurial way. Several characteristics are attributed to entrepreneurs, like a strong need for achievement, an internal locus of control, risk-taking propensity, or intuitiveness (Shook *et al.*, 2003). Within organisational change research, the focus on individual characteristics evolved more recently. In line with micro, person-oriented research on organisational change, Judge *et al.* (1999) identified seven traits that influence people's responses to change processes (*i.e.*, locus of control, self-efficacy, self-esteem, positive affectivity, openness to experience, tolerance for ambiguity, and risk aversion). These authors clustered the seven traits together in two factors that significantly predicted people's ways of dealing with organisational change, being a positive self-concept and risk tolerance. In this study, we choose to focus on locus of control

and self-efficacy as aspects of a positive self-concept and on tolerance for ambiguity as an aspect of risk tolerance. Additionally, we involve proactive personality, which is a more recently developed trait characteristic that is particularly relevant in the context of change (Crant, 2000). This way, we are also involving a mixture of trait characteristics that are examined in the entrepreneurship field, both extensively studied concepts (*e.g.*, self-efficacy) and newer perspectives (*e.g.*, proactive personality).

Locus of control. Locus of control refers to the extent to which people attribute the source of control over events to themselves (internal locus of control) or to external circumstances (external locus of control) (Rotter, 1966). Organisational change researchers (Judge *et al.*, 1999; Ng *et al.*, 2006) conclude that an internal locus of control might be positively related to handling organisational change, as it is associated with problem-focused coping strategies. Blau (1993) found that an internal locus of control was positively related to the initiative dimension of performance. This means that people with an internal locus of control engaged more frequently in innovative and spontaneous performance that goes beyond basic job requirements. Generally, it is believed that entrepreneurs prefer to take and hold command instead of leaving things to external factors (Cromie, 2000). Boone *et al.* (1996) conclude that many entrepreneurs eventually succeed due to an internal locus of control, as this helps them to overcome setbacks and disappointments and leads to higher firm performance. With regard to locus of control, research found that internally oriented entrepreneurs in comparison to externally oriented entrepreneurs pursued product-market innovations to a larger extent, undertook greater risks, and led rather than followed competitors (Entrialgo *et al.*, 2000; Miller *et al.*, 1982).

Self-efficacy. Self-efficacy is a person's belief about his or her chances of successfully accomplishing a specific task (Bandura, 1997). Self-efficacy is a motivational construct that influences people's choices of activities, goal levels, persistence, and performance in a variety of contexts (Zhao *et al.*, 2005). Self-efficacy is assumed to have an impact on people's willingness to introduce new products or services, to be proactive towards the environment, and to take risks (Poon *et al.*, 2006). As high self-efficacy gives people confidence to deal with unexpected events and to be able to handle whatever comes to them, it is considered to be an important factor in coping with organisational change (Judge *et al.*, 1999; Stajkovic & Luthans, 1998). People tend to avoid careers and environments of which they believe that they exceed their capacities. They do undertake vocations that they judge themselves capable

of (Markman *et al.*, 2002). Research on self-efficacy concludes that it is an important factor to clarify entrepreneurial intentions and behaviour (Boyd & Vozikis, 1994; Neck *et al.*, 1999). People need to believe in their capacity to succeed in starting and running a new business before they will do so.

Tolerance for ambiguity. When there is insufficient information to structure a situation, an ambiguous situation is said to exist. The way in which people deal with this ambiguous situation reflects their tolerance for ambiguity (Furnham & Ribchester, 1995). People with high tolerance for ambiguity find ambiguous situations challenging and strive to overcome unstable and unpredictable situations to perform well. People with low tolerance for ambiguity see ambiguous situations as threats. Previous research identified tolerance for ambiguity as one of the most important variables in explaining managerial coping with organisational change (Judge *et al.*, 1999; Tiong, 2005). Change is often characterised by complexity, newness, and uncertainty. Dealing with uncertainty, risks, and continuous change are part of entrepreneurial jobs (Markman & Baron, 2003). Whetten *et al.* (2000) found that managers with high tolerance for ambiguity were more entrepreneurial in their actions. Entrepreneurs with higher tolerance for ambiguity were found to own the most innovative and entrepreneurial firms (Entrialgo *et al.*, 2000; Rigotti *et al.*, 2003).

Proactive personality. Bateman and Crant (1993) define a proactive personality as a dispositional construct that refers to individual differences in the extent to which people take action to influence and change their environment. Proactive behaviour is considered to be an important variable in the context of organisational success, implying actions like challenging the status quo or identifying opportunities for improvement (Crant, 2000). Research on the entrepreneurial profile concludes that proactive behaviour is a characteristic of entrepreneurs (*e.g.*, Becherer & Maurer, 1999; Kickul & Gundry, 2002). Kickul and Gundry (2002) showed that entrepreneurs with a proactive personality choose a strategic orientation for their firm that permits flexibility and change in response to surrounding business conditions. Crant (1996) found that having a proactive personality to a large extent clarified the entrepreneurial intentions of MBA students. On the basis of previous research with these different traits and following the majority of studies that found a higher score for these traits among entrepreneurs, we propose:

Hypothesis 1: Entrepreneurs will score higher on each of these traits than healthcare managers.

The cognitive approach

Recently, a more cognitive oriented approach has been introduced in the entrepreneurship domain (Baron, 2004; Mitchell *et al.*, 2002). This approach tries to answer the question why some people are and others are not able to discover and exploit particular entrepreneurial opportunities. The cognitive perspective starts from the idea that some people are better in recognising opportunities, on the one hand because they possess information that is necessary to identify an opportunity, and on the other hand because they have the cognitive properties necessary to exploit them (Mitchell *et al.*, 2002). As the business environment in which many managers and entrepreneurs operate is increasingly complex, unpredictable, and unstable, the information-processing demands that are placed on these business leaders are enormous. In this respect, understanding the way in which they process and organise information is highly relevant (Sadler-Smith, 2004). An interesting concept in this context is cognitive style, defined as the way in which people perceive stimuli and how they use this information for guiding their behaviour (Hayes & Allinson, 1998).

A large variety of cognitive style dimensions has been identified by researchers over the years (Hodgkinson & Sadler-Smith, 2003). Recently, Cools and Van den Broeck (2007) reported on the development of a reliable, valid, and convenient cognitive style instrument – the Cognitive Style Indicator (CoSI) – for use with managerial and professional groups. Reliability, item, and factor analyses confirmed the internal consistency and homogeneity of three cognitive styles: a knowing, a planning, and a creating style (see Table 1). People with a *knowing style* search for facts and data. They want to know exactly the way things are and tend to retain many facts and details. They like to search for rational solutions. People with a *planning style* are characterised by a need for structure. Planners like to organise and control, and prefer a well structured work environment. They attach importance to preparation and planning to reach their objectives. People with a *creating style* tend to be creative and to like experimentation. They see problems as opportunities and challenges. They like uncertainty and freedom. As the CoSI is a valuable model to conceptualise cognitive style differences, we use this model in our research project. Moreover, previous research with this cognitive style model already demonstrated its value to distinguish entrepreneurs from non-entrepreneurs (Bouckennooghe *et al.*, 2005).

Table 1. Description of the three-dimension cognitive style model

Knowing Style	Planning style	Creating style
Facts	Sequential	Possibilities
Details	Structured	Ideas
Logical	Conventional	Impulsive
Reflective	Conformity	Flexible
Objective	Planned	Open-ended
Impersonal	Organised	Novelty
Rational	Systematic	Subjective
Precision	Routine	Inventive

Note. Based on Table 1 in Cools and Van den Broeck (2007).

A cognitive style is a fairly stable characteristic of people that is related to their habitual way of information processing (Hayes & Allinson, 1994; Sadler-Smith & Badger, 1998). A cognitive style influences how people prefer to look at their environment for information, how they organise and interpret this information, and how they use these interpretations for guiding their actions (Hayes & Allinson, 1998). In an early study on the link between cognitive styles and strategic decision making, Nutt (1990) found that cognitive style differences were a key factor in explaining the likelihood of taking strategic action and the perceived risk seen in this action. Cognitive styles are considered to be fundamental determinants of individual and organisational behaviour that manifest themselves in individual workplace actions and in organisational systems, processes, and routines (Sadler-Smith & Badger, 1998). According to Tullett (1996), cognitive styles play an important role in the manner and effectiveness with which managers guide their change processes.

Kickul and Krueger (2004) conclude from their study with entrepreneurs that cognitive styles play an important role in entrepreneurial thinking. According to their view, entrepreneurs with different cognitive styles do not necessarily perceive different opportunities (although they may), but it seems from their study that they got there by different cognitive paths. Allinson *et al.* (2000) propose that cognitive styles are an alternative way of differentiating entrepreneurs from non-entrepreneurs. Goldsmith and Kerr (1991) reported a higher score on an innovative cognitive style for students following an entrepreneurship class. Similarly, Buttner and Gyskiewicz (1993) found a more innovative cognitive style for entrepreneurs than for managers in large established organisations. Stewart *et al.* (1998) concluded from their research that entrepreneurs had a more innovative cognitive

style than managers of large organisations, who tended to prefer a more adaptive, analytical cognitive style. Allinson *et al.* (2000) found that entrepreneurs were more intuitive in their cognitive style than the general population of managers. However, no style differences were found between the entrepreneurs and the senior managers and executives in their samples. Based on previous cognitive style studies and using the terminology of the CoSI model, we propose that:

Hypothesis 2: Entrepreneurs will score higher on the creating style than healthcare managers.

Hypothesis 3: Entrepreneurs will score lower on the knowing and the planning style than healthcare managers.

Method

This research project integrates the work of two research centres. On the one hand, the study was part of a research project under the authority of Flanders District of Creativity. This is a government institution that aims to stimulate entrepreneurship, innovation, and creativity in Flanders. Flanders DC fulfils this task through sensibility campaigns, education programs, and research projects. On the other hand, the Research Centre for Hospital Management (MINOZ) and for Nursing Home Management (FORAMEN) wanted to assess the profile of healthcare managers to stimulate effective change management programmes in the healthcare sector.

Samples and procedure

To investigate the change management profile of people from different sectors, we involved two different samples in our study. Data were collected in March 2006, based on a survey instrument sent out to 1,797 Flemish entrepreneurs and 422 Flemish healthcare managers. These samples were drawn from the database maintained by a leading Western European business school.

Respondents were given a website link where they could complete the questionnaire. The survey was pre-tested with academics and practitioners to check whether the questions were clear and understandable. About two weeks after the initial emailing, we sent a ‘thank

you' email to people who completed the survey and a reminder to those who did not. In the end, 177 entrepreneurs (10 % response rate) and 60 healthcare managers (14 % response rate) participated in the study. Using the internet or email is a new and promising data collection tool as it is cheap and efficient. However, the experience is that the response rates are quite low compared to alternatives because people easily ignore requests for cooperation in such research studies (Spector, 2001).

Table 2 shows an overview of the characteristics of the samples. Both samples are comparable in terms of age, with a mean age of 47 years for the entrepreneurs and 46 years for the healthcare managers. Both samples consist of a majority of men. Whereas the healthcare managers work in hospitals and nursing homes, the entrepreneurs operate in a variety of sectors (*i.e.*, industry and production, services, distribution and trade, ICT and new technology, other).

Table 2. Sample descriptions

	Entrepreneurs (<i>n</i> = 177)	Healthcare managers (<i>n</i> = 60)
Mean age	47.46 (<i>SD</i> = 9.19)	45.82 (<i>SD</i> = 7.84)
Men	88 %	71 %
Women	12 %	29 %
Sector	Industry and production (30 %) Services (36 %) Distribution and trade (11 %) ICT and new technology (14 %) Other (9 %)	Hospitals (37 %) Nursing homes (63 %)
Mean firm age	37.49 (<i>SD</i> = 39.01)	
Department		General management (68 %) Nursing and care (22 %) Finance and administration (10 %)

To compare the entrepreneurs and the healthcare managers on the different traits and cognitive styles, we performed independent sample *t* tests, comparing the means of the two groups for each of the variables.

Measures

To select the measures, we considered the relevance of the instruments for entrepreneurs as well as for healthcare managers. For instance, we found a general locus of control scale and a general self-efficacy scale most appropriate for our research design – rather than a firm-level scale or one focused on specific entrepreneurial activities – to compare the two samples. To limit the length of the survey, we searched for short scales. If a short measure was not available, we selected a number of items from a larger scale, choosing those items that showed the highest factor loadings as indicated in the original scale development and validation articles. All measures used a five-point likert scale format from 1 (*typifies me not at all*) to 5 (*typifies me completely*). We created a composite score for each measure by averaging the responses across the items used for the measure. Higher scores on a measure reflect higher levels of the construct.

Locus of control. A 7-item scale was excerpted from Rotter's (1966) Internal-External (I-E) scale to measure locus of control (Kreitner *et al.*, 2002). A likert-scale version of this measure was used (Poon *et al.*, 2006), with higher scores reflecting a higher internal locus of control.

Self-efficacy. We measured self-efficacy with 6 items taken from the 17-item General Self-Efficacy Scale (GSE) developed by Sherer *et al.* (1982). This is the most widely used instrument to measure general self-efficacy (Chen *et al.*, 2001).

Tolerance for ambiguity. We assessed tolerance for ambiguity using ten items, taken from the willingness-to-change subscale of the Innovativeness scale (Hurt *et al.*, 1977) and the Need for Cognitive Closure scale (Webster & Kruglanski, 1994). Given the criticism on several Tolerance for Ambiguity scales (*e.g.*, Furnham & Ribchester, 1995; Grenier *et al.*, 2005), we chose to measure the construct with these subscales.

Proactive personality. We assessed proactive personality with 6 items from Bateman and Crant's (1993) 17-item Proactive Personality scale.

Cognitive styles. Cognitive styles were measured with the 18-item Cognitive Style Indicator (CoSI) (Cools & Van den Broeck, 2007). The CoSI distinguishes a knowing style (4 items), a planning style (7 items), and a creating style (7 items).

Results

Descriptive statistics

We summarise the correlations of the variables in Table 3, together with the corresponding means, standard deviations, and alpha reliabilities. All trait variables (except for locus of control) are significantly correlated among one another. This is consistent with previous research on these traits (Judge *et al.*, 1999; Poon *et al.*, 2006).

Table 3. Descriptive statistics, scale reliabilities, and correlations of study variables

<i>Variable</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>7</i>
1. Locus of control	(.72)						
2. Self-efficacy	.27***	(.61)					
3. Tolerance for ambiguity	.07	.38***	(.73)				
4. Proactive personality	.38***	.61***	.50***	(.73)			
5. Knowing style	.17*	.28***	-.08	.22**	(.76)		
6. Planning style	.14*	.15*	-.30***	.05	.58***	(.82)	
7. Creating style	.17*	.36***	.58***	.53***	.19**	.05	(.78)
Mean	3.18	3.70	3.29	3.71	3.69	3.70	4.02
Standard deviation	.58	.63	.51	.52	.65	.60	.50

Notes. Alpha reliabilities are shown in parentheses on the diagonal; * $p < .05$, ** $p < .01$, *** $p < .001$.

Looking at the correlations among the cognitive styles, a strong positive correlation is found between the knowing and planning style ($r = .58$, $p < .001$). However, item and factor analyses justify the distinction between the two styles. Previous research with this cognitive style model also lend support to the three-factor cognitive style model, given the different correlations of the knowing and planning style with several other scales and their different correlation with the creating style (knowing style, $r = .19$, $p < .01$; planning style, $r = .05$, $p = .48$) (Cools & Van den Broeck, 2007). It is also remarkable that the creating style shows a strong correlation with different trait variables in the study. Previous research on cognitive styles found that people with a more intuitive (creating) cognitive style prefer to leave options open, can tolerate ambiguity, like to restructure situations, have a more proactive personality, and are self-confident (*e.g.*, Kickul & Krueger, 2004; Kirton, 1994; Myers *et al.*, 2003).

Moreover, a significant negative correlation is found between the planning style and tolerance for ambiguity ($r = -.30, p < .001$). Previous researchers found that there is considerable variation between managers in terms of risk preferences (Nutt, 1990; Stewart *et al.*, 1998) and propensities to welcome or seek change (Bobic *et al.*, 1999).

Comparing entrepreneurs and healthcare managers

Table 4 represents the results of the comparison of the entrepreneurs and healthcare managers on the different trait and cognitive characteristics.

Table 4. Comparison of entrepreneurs ($n = 177$) and healthcare managers ($n = 60$)

Variable	Entrepreneurs		Healthcare managers		Comparison	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>t</i>	<i>Df</i>
<i>Traits</i>						
Locus of control	3.27	0.53	2.95	0.65	3.79***	(228)
Self-efficacy	3.79	0.61	3.42	0.61	3.99***	(229)
Tolerance for ambiguity	3.34	0.51	3.16	0.50	2.39*	(227)
Proactive personality	3.80	0.51	3.44	0.47	4.79***	(228)
<i>Cognitive styles</i>						
Knowing style	3.64	0.66	3.86	0.60	-2.21*	(232)
Planning style	3.64	0.58	3.86	0.63	-2.48*	(231)
Creating style	4.05	0.49	3.94	0.51	1.52	(233)

Note. * $p < .05$, ** $p < .01$, *** $p < .001$.

As can be seen in Table 4, the entrepreneurs score higher on all traits than the healthcare managers. Hence, Hypothesis 1 is confirmed. When comparing the entrepreneurs and healthcare managers on the cognitive styles, we see that Hypothesis 3 is confirmed, but Hypothesis 2 is not. Comparison of the cognitive style profiles of the two samples in our study reveals that healthcare managers score significantly higher on the knowing and the planning style than entrepreneurs. No significant difference is found for the creating style. Interestingly, when comparing healthcare managers with entrepreneurs from the service sector ($n = 64$), all differences between the two samples remained significant, except for the knowing style ($t(121) = -1.69, p = .09$) and tolerance for ambiguity ($t(120) = 1.72, p = .09$).

These additional analyses suggest that the findings in Table 4 are probably more due to being an entrepreneur or not than to the sector of employment.

Discussion and conclusion

The aim of this study was to contribute to further insights into the change management profile of people from different sectors. We compared entrepreneurs and healthcare managers to investigate the extent to which they are currently ‘armed’ to deal effectively with change. Through the exploration of a cluster of traits and cognitive style profiles of entrepreneurs and healthcare managers, we are convinced that we contributed to the advancement of organisational change research.

Discussion of findings

Our findings demonstrated that Flemish entrepreneurs score higher on an internal locus of control, self-efficacy, tolerance for ambiguity, and proactive personality than the healthcare managers in our study. These results are consistent with previous trait studies that found that entrepreneurs had a more internal locus of control than non-entrepreneurs (*e.g.*, Vecchio, 2003), higher levels of self-efficacy (*e.g.*, Chen *et al.*, 1998), higher tolerance for ambiguity (*e.g.*, Koh, 1996), and a more proactive personality (*e.g.*, Becherer & Maurer, 1999). These findings suggest that entrepreneurs are currently better equipped to deal with the many changes and uncertainties that characterise the current work surroundings than healthcare managers. Fortunately, many of these traits can be learned and developed, implying that effective training programmes can play an important role to strengthen people’s change management profile.

With regard to cognitive style differences, we found a higher score for the knowing and the planning style for healthcare managers than for entrepreneurs, indicating a larger focus on rationality and procedures from managers of the healthcare sector than from entrepreneurs. No differences were found for the creating style. Although previous research found a higher score on an innovative cognitive style for entrepreneurs than for non-entrepreneurs (*e.g.*, Buttner & Grysliewicz, 1993; Goldsmith & Kerr, 1991), this was not confirmed in our study. However, this finding is consistent with previous research of Allinson

et al. (2000) that found no differences for an intuitive cognitive style between entrepreneurs and senior managers in their samples. Managers on higher levels, like entrepreneurs, also face uncertainty, time pressure, ambiguity, incomplete information, which needs an intuitive problem solving approach (Sadler-Smith, 2004). These findings suggest that it is not necessarily a creating style that typifies entrepreneurs. In contrary, it seems that higher levels of knowing and planning styles hamper entrepreneurship. The knowing style is characterised by a focus on facts and figures, a high level of rationality, and avoidance of risks. The planning style is characterised by an urge for control, a focus on structures, procedures, and planning, and a need for certainty. These characteristics might implicate that people with these styles see more risk in entrepreneurship and experience higher levels of uncertainty, which curbs their enthusiasm to become an entrepreneur. Understanding the interplay between people' preferences and their day-to-day workplace behaviour is crucial for designing and implementing effective individual development efforts (Berr *et al.*, 2000). As cognitive styles are considered to be fairly stable characteristics of people (Clapp, 1993), this does not imply changing one's style, but rather learning about the consequences of having a particular style. Importantly, no style is inherently better than another. Schroder (1994), for instance, found that cognitive styles are independent of management competence, but do influence the way in which management competence is expressed.

Research limitations

Some limitations of the study should also be indicated. Due to the data collection method, we cannot totally assure whether our samples are representative for their populations. This coverage problem is inherent to online surveying. Additionally, it is necessary to continue and cross-validate this study with data from multiple sources, as we now depend on self-reporting data.

Second, due to availability and access problems, we only compared entrepreneurs and healthcare managers. To examine the consistency of our findings, further research should also look at the comparison with other types of managers for two major reasons. (1) As trait studies within entrepreneurship did not succeed in identifying those factors that are unique to entrepreneurs, a major criticism on studies that compare entrepreneurs with non-entrepreneurs is that these traits are common to successful people, including managers (Boyd & Vozikis, 1994). Our study could not fully address this criticism as we only included healthcare managers. However, we could make a distinction between entrepreneurs and non-

entrepreneurs with regard to the level to which they show particular traits. (2) Although previous studies on entrepreneurs' cognitive styles did not find differences between entrepreneurs and senior managers in their samples with regard to the intuitive cognitive style (Allinson *et al.*, 2000), they did find differences for lower-level managers. Due to the sample size of the non-entrepreneurs in our study and the limited number of lower-level managers within this sample ($n = 10$), we could not further examine this.

Finally, it can be of interest to take a longitudinal perspective rather than a cross-sectional one. For instance, locus of control and self-efficacy are considered to be learned characteristics that can change over time (Hansemark, 2003). A longitudinal study, in which dependent and independent variables are kept separate, can contribute to further examination of the predictive power of various traits. Moreover, comparing potential entrepreneurs with actual entrepreneurs and various types of corporate managers, preferably in a longitudinal setting, can stimulate the advancement of the knowledge about what distinguishes entrepreneurs from other types of managers.

Practical implications

Our findings are useful in the light of the coaching and training of entrepreneurs and managers as they contribute to the existing knowledge about what characterises different types of business leaders. At this moment, organisational change processes often fail (Beer & Nohria, 2000). Identifying and investing in the right individual characteristics might lead to an increased success rate. By identifying the factors (*i.e.*, trait and cognitive characteristics) that are associated with effective change management, programmes can be designed (by governments or other institutions) to develop and enhance these factors. Judge *et al.* (1999) emphasised the importance of a positive self-concept (*e.g.*, internal locus of control, self-efficacy) and risk tolerance (*e.g.*, tolerance for ambiguity) to cope with organisational change. In this respect, this research project shows that management education and training must not only focus on technical and managerial skills. It is equally, or even more, important to give attention to stimulating particular characteristics (*e.g.*, self-efficacy, locus of control) and to learn people ways to deal with their individual profile. Neck *et al.* (1999), for instance, make some useful suggestions to design an effective developmental programme – called a model of 'Thought Self-Leadership' – to stimulate people's self-efficacy. These authors distinguish between opportunity thinking (*i.e.*, a pattern of thoughts that focuses on opportunities, worthwhile challenges, and constructive ways of dealing with challenging situations) and

obstacle thinking (*i.e.*, a pattern of thoughts that focuses on negative aspects, such as reasons to give up or retreat from the problem). In terms of success, it makes a lot of difference whether you are an obstacle thinker or an opportunity thinker. Through the effective application of the right mental strategies (*e.g.*, self-talk, mental imagery), it is possible to stimulate people's self-efficacy and consequently also their chance of success in coping with organisational change.

With this research project, we hope to stimulate entrepreneurs and healthcare managers to get more insight in their own change management profile. Research has found that this individual profile influences their way of decision making, their willingness to change, and their choices of the most appropriate and successful change strategy for the organisation (Tullett, 1996). With the increased prevalence of executive coaching and the use of managerial assessments, research on the impact of individual differences on coping with organisational change is highly relevant (Berr *et al.*, 2000). Whetten *et al.* (2000) emphasised the importance of intrapersonal skills for effective management. This means, in their perspective, developing self-awareness based on a thorough analysis of one's strengths and weaknesses. It is clear from our study that healthcare managers and entrepreneurs have a different change management profile with different strengths and weaknesses. Increased awareness of business leaders' profile might stimulate effective and professional change management.

References

- Allinson, C.W., Chell, E., & Hayes, J. (2000) Intuition and entrepreneurial behaviour, *European Journal of Work and Organizational Psychology*, 9(1), pp. 31-43.
- Bandura, A. (1997) *Self-efficacy: The Exercise of Control* (New York, Freeman).
- Baron, R.A. (2004) The cognitive perspective: a valuable tool answering entrepreneurship's basic "why" questions, *Journal of Business Venturing*, 19(2), pp. 221-239.
- Bateman, T.S., & Crant, J.M. (1993) The proactive component of organizational behavior: a measure and correlates, *Journal of Organizational Behavior*, 14(2), pp. 103-118.
- Becherer, R.C., & Maurer, J.G. (1999) The proactive personality disposition and entrepreneurial behavior among small company presidents, *Journal of Small Business Management*, 37(1), pp. 28-36.
- Beer, M., & Nohria, N. (2000) Cracking the code of change, *Harvard Business Review*, 78(3), pp. 133-141.
- Berr, S.A., Church, A.H., & Wacławski, J. (2000) The right personality is everything: linking personality preferences to managerial behaviors, *Human Resource Development Quarterly*, 11(2), pp. 133-157.

- Blau, G.J. (1993) Testing the relationship of locus of control to different performance dimensions, *Journal of Occupational and Organizational Psychology*, 66(2), pp. 125-138.
- Bobic, M, Davis, E., & Cunningham, R. (1999) The Kirton Adaption-Innovation Inventory: validity issues, practical questions, *Review of Public Personnel Administration*, 19(2), pp. 18-31.
- Boone, C., De Brabander, B., & Van Witteloostuijn, A. (1996) CEO locus of control and small firm performance: an integrative framework and empirical test, *Journal of Management Studies*, 33(5), pp. 667-699.
- Bouckenoghe, D., Cools, E., Vanderheyden, K., & Van den Broeck, H. (2005) In search for the Heffalump: an exploration of cognitive style profiles among Flemish entrepreneurs, *Journal of Applied Management and Entrepreneurship*, 10(4), pp. 58-75.
- Boyd, N.G., & Vozikis, G.S. (1994) The influence of self-efficacy in the development of entrepreneurial intentions and actions, *Entrepreneurship Theory and Practice*, 18(4), pp. 63-90.
- Bridge, S., O'Neill, K., & Cromie, S. (2003) *Understanding Enterprise: Entrepreneurship and Small Business (second edition)* (New York, Palgrave Macmillan).
- Burke, W.W., & Trahan, W. (2000) *Business Climate Shifts: Profiles of Change Makers* (Boston, Butterworth Heinemann).
- Buttner, E.H., & Gyskiewicz, N. (1993) Entrepreneurs' problem-solving styles: an empirical study using the Kirton Adaption/Innovation theory, *Journal of Small Business Management*, 31(1), pp. 22-31.
- Chen, C.C., Greene, P.G., & Crick, A. (1998). Does entrepreneurial self-efficacy distinguish entrepreneurs from managers? *Journal of Business Venturing*, 13(4), pp. 295-316.
- Chen, G., Gully, S.M., & Eden, D. (2001) Validation of a new general self-efficacy scale, *Organizational Research Methods*, 4(1), pp. 62-83.
- Clapp, R.G. (1993) Stability of cognitive style in adults and some implications: a longitudinal study of the Kirton Adaption-Innovation Inventory, *Psychological Reports*, 73(3), pp. 1235-1245.
- Clegg C., & Walsh S. (2004) Change management: time for a change! *European Journal of Work and Organizational Psychology*, 13(2), pp. 217-239.
- Cools, E., & Van den Broeck, H. (2007) Development and validation of the Cognitive Style Indicator, *The Journal of Psychology: Interdisciplinary and Applied*, 141(4), pp. 359-387
- Crant, J.M. (1996) The proactive personality scale as a predictor of entrepreneurial intentions, *Journal of Small Business Management*, 34(3), pp. 42-49.
- Crant, J.M. (2000) Proactive behaviour in organizations, *Journal of Management*, 26(3), pp. 435-462.
- Cromie, S. (2000) Assessing entrepreneurial inclinations: some approaches and empirical evidence, *European Journal of Work and Organizational Psychology*, 9(1), pp. 7-30.
- Drucker, P.F. (1985) *Innovation and Entrepreneurship: Practice and Principles* (New York, Harper & Row).
- Entrialgo, M., Fernández, E., & Vázquez, C.J. (2000) Characteristics of managers as determinants of entrepreneurial orientation: some Spanish evidence, *Enterprise & Innovation Management Studies*, 1(2), pp. 187-205.
- Furnham, A., & Ribchester, T. (1995) Tolerance of ambiguity: a review of the concept, its measurement and applications, *Current Psychology*, 14(3), pp. 179-200.
- Goldsmith, R.E., & Kerr, J.R. (1991) Entrepreneurship and Adaption-Innovation theory, *Technovation*, 11(6), pp. 373-382.
- Grenier, S., Barrette, A.-M., & Ladouceur, R. (2005) Intolerance of uncertainty and intolerance of ambiguity: similarities and differences, *Personality and Individual Differences*, 39(3), pp. 593-600.

- Hansemark, O.C. (2003) Need for achievement, locus of control and the prediction of business start-ups: a longitudinal study, *Journal of Economic Psychology*, 24(3), pp. 301-319.
- Hayes, J., & Allinson, C.W. (1994) Cognitive style and its relevance for management practice, *British Journal of Management*, 5(1), pp. 53-71.
- Hayes, J., & Allinson, C.W. (1998) Cognitive style and the theory and practice of individual and collective learning in organizations, *Human Relations*, 51(7), pp. 847-871.
- Hodgkinson, G.P., & Sadler-Smith, E. (2003) Complex or unitary? A critique and empirical re-assessment of the Allinson-Hayes Cognitive Style Index, *Journal of Occupational and Organizational Psychology*, 76(2), pp. 243-268.
- Hough, J.R., & ogilvie, dt (2005) An empirical test of cognitive style and strategic decision outcomes, *Journal of Management Studies*, 42(2), pp. 417-448.
- Hurt, H.T., Joseph, K., & Cook, C.D. (1977) Scales for the measurement of innovativeness, *Human Communication Research*, 4(1), pp. 58-65.
- Judge, T.A., Thoresen, C.J., Pucik, V., & Welbourne, T.M. (1999) Managerial coping with organizational change: a dispositional perspective, *Journal of Applied Psychology*, 84(1), pp. 107-122.
- Kickul, J., & Gundry, L.K. (2002) Prospecting for strategic advantage: the proactive entrepreneurial personality and small firm innovation, *Journal of Small Business Management*, 40(2), pp. 85-97.
- Kickul, J., & Krueger, N. (2004) A cognitive processing model of entrepreneurial self-efficacy and intentionality. in: S.A. Zahra *et al.* (Eds.), *Frontiers of Entrepreneurship Research*, pp. 607-619 (Wellesley, MA, Babson College, Center for Entrepreneurial Studies).
- Kirton, M.J. (Ed.) (1994) *Adaptors and Innovators: Styles of Creativity and Problem Solving* (New York, Routledge).
- Koh, H.C. (1996) Testing hypotheses of entrepreneurial characteristics: a study of Hong Kong MBA students, *Journal of Managerial Psychology*, 11(3), pp. 12-25.
- Kreitner, R., Kinicki, A., & Buelens, M. (2002) *Organizational Behaviour (second European edition)* (London, McGraw-Hill).
- Leonard, N.H., Scholl, R.W., & Kowalski, K.B. (1999) Information processing style and decision making, *Journal of Organizational Behavior*, 20(3), pp. 407-420.
- Lumpkin, G.T., & Erdogan, B. (2004) If not entrepreneurship, can psychological characteristics predict entrepreneurial orientation? – a pilot study, *The ICFAI Journal of Entrepreneurship Development*, 1(1), pp. 21-33.
- Markman, G.D., Balkin, D.B., & Baron, R.A. (2002) Inventors and new venture formation: the effects of general self-efficacy and regretful thinking, *Entrepreneurship Theory and Practice*, 27(2), pp. 149-165.
- Markman, G.D., & Baron, R.A. (2003) Person-entrepreneurship fit: why some people are more successful as entrepreneurs than others, *Human Resource Management Review*, 13(2), pp. 281-301.
- Miller, D., Kets De Vries, M.F.R., & Toulouse, J. (1982) Top executive locus of control and its relationship to strategy-making, structure, and the environment, *Academy of Management Journal*, 25(2), pp. 237-253.
- Mitchell, R.K., Busenitz, L., Lant, T., McDougall, P.P., Morse, E.A., & Smith, H.B. (2002) Toward a theory of entrepreneurial cognition: rethinking the people side of entrepreneurship research, *Entrepreneurship Theory and Practice*, 27(2), pp. 93-104.
- Myers, I.B., McCaulley, M.H., Quenk, N.L., & Hammer, A.L. (2003) *MBTI Manual: A Guide to the Development and Use of the Myers-Briggs Type Indicator* (Palo Alto, CA, Consulting Psychologists Press).

- Neck, C.P., Neck, H.M., Manz, C.C., & Godwin, J. (1999) "I think I can; I think I can": a self-leadership perspective toward enhancing entrepreneur thought patterns, self-efficacy, and performance, *Journal of Managerial Psychology*, 14(6), pp. 477-501.
- Ng, T.W.H., Sorensen, K.L., & Eby, L.T. (2006) Locus of control at work: a meta-analysis, *Journal of Organizational Behavior*, 27(8), pp. 1057-1087.
- Nutt, P.C. (1990) Strategic decisions made by top executives and middle managers with data and process dominant styles, *Journal of Management Studies*, 27(2), pp. 173-194.
- Poon, J.M.L., Ainuddin, R.A., & Junit, S.H. (2006) Effects of self-concept traits and entrepreneurial orientation on firm performance, *International Small Business Journal*, 24(1), pp. 61-82.
- Rigotti, L., Ryan, M., & Vaithianathan, R. (2003) Tolerance of ambiguity and entrepreneurial innovation, *Working Papers Duke Fuqua School of Business*, 1/1/2003, 39 p.
- Romanelli E., & Tushman M. (1994) Organizational transformation as punctuated equilibrium: an empirical test, *Academy of Management Journal*, 37(5), pp. 1141-1166.
- Rotter, J.B. (1966) Generalized expectancies for internal and external control of reinforcement, *Psychological Monographs: General and Applied*, 80(1), pp. 1-28.
- Sadler-Smith, E. (2004) Cognitive style and the management of small and medium-sized enterprises, *Organization Studies*, 25(2), pp. 155-181.
- Sadler-Smith, E., & Badger, B. (1998) Cognitive style, learning and innovation, *Technology Analysis and Strategic Management*, 10(2), pp. 247-265.
- Sherer, M., Maddux, J.E., Mercandante, B., Prentice-Dunn, S., Jacobs, B., & Rogers, R.W. (1982) The self-efficacy scale: construction and validation, *Psychological Reports*, 51(2), pp. 663-671.
- Shook, C.L., Priem, R.L., & McGee, J.E. (2003) Venture creation and the enterprising individual: a review and synthesis, *Journal of Management*, 29(3), pp. 379-399.
- Schroder, H.M. (1994) Managerial competence and style, in: M.J. Kirton (Ed.), *Adaptors and Innovators: Styles of Creativity and Problem Solving*, pp. 91-113 (New York, Routledge).
- Stajkovic, A.D., & Luthans, F. (1998) Self-efficacy and work-related performance: a meta-analysis, *Psychological Bulletin*, 124(2), pp. 240-261.
- Spector, P.E. (2001) Research methods in industrial and organizational psychology: data collection and data analysis with special consideration to international issues, in: N. Anderson, D.S. Ones, H.G. Sinangil & C. Viswervaran (Eds.), *Handbook of Industrial, Work, and Organizational Psychology. Volume 1: Personnel Psychology*, pp. 10-26 (London, Sage).
- Stewart, W.H., Jr., Watson, W.E., Carland, J.C., & Carland, J.W. (1998) A proclivity for entrepreneurship: a comparison of entrepreneurs, small business owners, and corporate managers, *Journal of Business Venturing*, 14(2), pp. 189-214.
- Tiong, T.N. (2005) Maximising human resource potential in the midst of organisational change, *Singapore Management Review*, 27(2), pp. 25-35.
- Tullett, A.D. (1996) The thinking style of the managers of multiple projects: implications for problem solving when managing change, *International Journal of Project Management*, 14(5), pp. 281-287.
- Vakola M., Tsaousis L., & Nikolaou L. (2004) The role of emotional intelligence and personality variables on attitudes toward organisational change, *Journal of Managerial Psychology*, 19(2), pp. 88-110.
- Vandenberghe, C. (1999) Organizational culture, person-culture fit, and turnover: a replication in the healthcare industry, *Journal of Organizational Behavior*, 20(2), pp. 175-184.
- Vecchio, R.P. (2003) Entrepreneurship and leadership: common trends and common threads, *Human Resource Management Review*, 13(2), pp. 303-327.

- Wanberg C.R., & Banas J.T. (2000) Predictors and outcomes of openness to changes in a reorganizing workplace, *Journal of Applied Psychology*, 85(1), pp. 132-142.
- Webster, D.M., & Kruglanski, A.W. (1994) Individual differences in need for cognitive closure, *Journal of Personality and Social Psychology*, 67(6), pp. 1049-1062.
- Whetten, D., Cameron, K., & Woods, M. (2000) *Developing Management Skills for Europe (second edition)* (Harlow, Pearson Education).
- Wickham, P.A. (2004) *Strategic Entrepreneurship (third edition)* (Harlow, Pearson Education).
- Zhao, H., Seibert, S.E., & Hills, G.E. (2005) The mediating role of self-efficacy in the development of entrepreneurial intentions, *Journal of Applied Psychology*, 90(6), pp. 1265-1272.