



Paper to be presented at the  
DRUID Society Conference 2014, CBS, Copenhagen, June 16-18

## **The challenges of measuring the entrepreneurial personality ? A methodological approach**

**Annemarie Østergaard**  
Aalborg  
Business & Management  
aoe@business.aau.dk

### **Abstract**

Currently, the entrepreneurial personality is measured with outdated or invalid measurement tools and without clearly defined units (Davidsson, 2005; Davidsson, 2008; Gartner, 1989). Moreover, the precondition before measuring is often neglected. Consequently, the aim of this paper is to outline the primary challenges of the entrepreneurial personality followed by suggestions on how to overcome the measurement challenge by adding new knowledge. Among others, the diverse elements of entrepreneurial personality attributes are presented in a model to make the concept more manageable, including how to integrate and differentiate the elements. On the subject of measuring the entrepreneurial personality in a valid and reliable way, the overall challenge is to specify: why the personality is relevant to measure, which part of the personality is entrepreneurial, which parameters of the personality are actually measurable, with which current measurement tools and how to do it properly. Focusing directly on the challenges, this paper suggests new measurement avenues for the entrepreneurial personality by presenting solutions.

# Abstract

Currently, the entrepreneurial personality is measured with outdated or invalid measurement tools and without clearly defined units (Davidsson, 2005; Davidsson, 2008; Gartner, 1989). Moreover, the precondition before measuring is often neglected. Consequently, the aim of this paper is to outline the primary challenges of the entrepreneurial personality followed by suggestions on how to overcome the measurement challenge by adding new knowledge. Among others, the diverse elements of entrepreneurial personality attributes are presented in a model to make the concept more manageable, including how to integrate and differentiate the elements. On the subject of measuring the entrepreneurial personality in a valid and reliable way, the overall challenge is to specify: why the personality is relevant to measure, which part of the personality is entrepreneurial, which parameters of the personality are actually measurable, with which current measurement tools and how to do it properly. Focusing directly on the challenges, this paper suggests new measurement avenues for the entrepreneurial personality by presenting solutions.

## Introduction

This paper demonstrates how the theoretical contributors partly describe the entrepreneurial personality, e.g. Schumpeter's Creative Destructor (Schumpeter, 1931), McClelland's personality traits: Need for Achievement, Autonomy, Independence and Power (McClelland, 1961, 1975 and 1987) and Kets de Vries' description of an entrepreneur as an individual that comes from a tough childhood with a desire to turn the tables and become an entrepreneur (Kets de Vries, 2009). Afterwards, the challenges and the pitfalls about these personality descriptions are discussed considering the psychological variables as well as the psychological invariables from a model called The Psychological Variable Wheel.

To suggest how to measure the entrepreneurial part of the personality, this article deals with confusion of the concept of personality through a literature review of the most influential theoretical contributors in the development of the concept of personality. Highlighting the concept of personality with a historical lens provides new knowledge in order to understand and to use the concept deliberately in the future. The complex facts about the personality concept are described in a definition where the parameters: thoughts, feelings and behaviour are crucial to get the full picture on what actually is taking place when an entrepreneur is acting. Additionally, the core personality is seen as relatively stable and exhibits regularity with both its recognisability and predictability. However, there are no way out that besides the innate determinants: the externals (social) incidents according to childhood, environment and the past as well as the future (e.g. upcoming learning programmes, disasters and opportunities) which impact on the personality of any individual. The external incidents are therefore referred to as the psychological variables that interfere with the individual's possibility to fulfil the task either in a positive or negative way.

Then, a focus on the lack of consideration of the unconsciousness of a self-score measurement in the measurement tool has been highlighted. Through a literature review of the most frequently used measurement tools according to personality, namely personality tests, a framework for an individual's personality traits is suggested, e.g. Raymond Cattel's 16 PF (Pervin & John, 2001), Paul T. Costa & Robert R. McCrae's Five Big Factors, (McCrae, 1992) and John Holland's hexagonal model RIASEC (Holland, 1966; Holland, 1997). This paper suggests that personality tests should withdraw the full score, e.g. both high and low scores instead of only one to a few desirable traits, to outline the personality pattern that identifies an entrepreneur. This paper follows the Swedish economist Per Davidsson (Davidsson, 2005, 2008), who recommends that samples should be drawn from a general population instead of continuing the vague research of personality traits in questionnaires from a population of entrepreneurs. Likewise, Van der Loos, Koellinger and Thurik argue for an investigation to collect extraordinary knowledge from the genetic research field instead of surveys in elements that are visible and obvious for everyone (Van der Loos et al, 2010).

Finally, the preconditions for the measurements are discussed and gathered in a model. This paper argues that any researcher, before a measurement, must consider the basic questions: why, what and how. First, why to measure: the researcher must decide the purpose of measuring, e.g. recruitment, investment security, research or individual talent development. Then, the next step is to decide what to measure: DNA, education, background, personality or behaviour. And finally according to the why and what, it is time to decide how to measure: by interview, field observation, self-rating, psychological testing or financial revenue results. By questioning the what, why and how, this paper answers, to some extent, how to cope with challenges by measuring a concept and an undefined person.

But most importantly, this article argues for a future precedent in research on the measurement of personality matters that considers the full picture of the personality as a frame. Moreover, that future research considers the original construction of a personality test to avoid subjective invalid answers as an indicator of entrepreneurial behaviour.

## **The challenges of the entrepreneurial personality**

The descriptions of a person's characteristics are often mentioned as an individual's personality: either it is behaviour, values, intelligence, motives, knowledge, cognitive style or for instance problem-solving. Since the concept of personality is also used as a characteristic of famous individuals, the confusion is complete. These "personalities" indicate that personality is a kind of charisma and something special which is only for the few. The confusion also hit a sore spot in the research of personally characteristics of entrepreneurs in entrepreneurship, leaders in leadership, and likewise with managers and talents. In the next paragraph, the lack of definition agreement of an entrepreneur demonstrates a similar fuzziness as with the concept of personality.

### **The entrepreneur**

Among the most common descriptions of entrepreneurs is Joseph Alois Schumpeter's "creative destructor" from his terminology from 1931 in the German book: *Theorie der Wirtschaftlichen Entwicklung* from Duncker und Humblat. Schumpeter sees the entrepreneur as a highly complex

individual, who's view differs from other economists' views on the entrepreneur as a simpleton or automaton. The Dutch economist Manfred Kets de Vries, who is also trained in psychodynamics, stated in 1977 that the term 'entrepreneur' derives from the French word "entreprendre" (to undertake) and has been defined and redefined many times by historians, economists and sociologists. Besides the conceptual niceties, Kets de Vries further mentions how entrepreneurship students understand entrepreneurs as different, as instrumental in the conception of the idea of an enterprise and the implementation of these ideas. Kets de Vries sees the entrepreneur as a person who fulfils a number of functions in this process, which can be summarised as innovation, management-coordinating and risk-taking functions (Kets De Vries, M. F. R., 1977, p. 37). These characteristics are connected to the behaviour of a specific role, different concepts and more process oriented than personality related, they are not personality traits. Likewise, Schumpeter's all over description lacks detail and provides a researcher with some measure of challenges.

However, throughout four decades Manfred Kets de Vries has established his work as influential in management research, and he has outlined the entrepreneurial personality (Kets De Vries, M. F. R., 1977; Kets De Vries, M. F. R., 1996a; Zaleznik & Kets De Vries, M. F. R., 1976) as well as the leadership personality and the issues in general, for example the born or made question and how to puzzle a personality (Kets De Vries, M. F. R., 1996b; Kets De Vries, M. F. R., 1999; Kets De Vries, M. F. R. & Florent-Treacy, 2002; Kets De Vries, M. F. R. & Engellau, 2004; Kets De Vries, M. F. R., 2006; Kets De Vries, M. F. R., Korotov, & Florent-Treacy, 2007; Kets de Vries, Manfred F. R., 2009).

From his work, Kets de Vries mentions six main psychological themes after an in-depth look into the entrepreneurial personality: a need for control, a sense of distrust, a desire for applause, a tendency to 'split', scapegoating and the flight into action (Kets de Vries, Manfred F. R., 2009). The six personality descriptions or "traits" should belong to the core of the personality as described by Kets de Vries, but they appear very differently in their structure. The first three are similar to trait descriptions from other scholars (see below). The fourth: a tendency to "split" is much more rare, but interesting. Split is also described as the gift of seeing two sides of the same coin simultaneously (Østergaard, 2003; Siebert, 1996). The latter two differ, especially from other researchers' findings of entrepreneurship descriptions: a scapegoat is simply an opinion of the entrepreneur's role in society, the family or elsewhere, hence it cannot be a personality trait. The behaviour of flight into action matches how an entrepreneur often feels different from others in their priorities, work method etc.; and the expression also describes the entrepreneur's passion and eagerness to solve problems with an operational goal-oriented achievement instinct. More recently, Kets de Vries also found the entrepreneur as a moderate risk-taker, anxious, inner-directed and having an internal locus of control (Kets de Vries, Manfred F. R., 2009; Miller, Kets De Vries, M. F. R., & Toulouse, 1982), which could all be described as personality traits.

Another classic example is David McClelland's findings from 1961 and 1975 on the entrepreneurial personality, where he points out that the entrepreneurial personality is covered by: high achievement motivation, a need for autonomy, power and independence (McClelland, 1987). In this way, McClelland includes the entrepreneur's motivation, behaviour and personality traits in one unit. Since the levels differ, these descriptions are not immediately comparable to each other or to, for instance, Schumpeter's inclusion of the entire entrepreneurial role. Some of McClelland's characteristics of an entrepreneur are dependent on moments, or social and environmental circumstances.

## **The entrepreneurial dilemma**

In an attempt to solve the dilemma of defining entrepreneurs, several issues appear: the dilemma of how to recognise one type of entrepreneur from another, and the differentiation between an entrepreneur and a hired CEO, a manager, an inventor, an inheritor etc. Furthermore, as mentioned above, the literature outlines dilemmas on how to describe an entrepreneur correctly: with behaviour descriptions, role characteristics, personality traits, motives or mind-sets.

Undoubtedly, an agreement on this is desirable soon. First, there is a need for one definition of an entrepreneur that scholars agree on or the establishment of a new typology that describes the different types of entrepreneurs; the latter must be the most preferable. Second, the descriptions of the entrepreneur as an individual must be provided in psychological and sociological terminology to avoid any misinterpretation. This implies a differentiation between personality traits, motives, characteristics, competences etc. Third and highly topical, the necessity to distinguish between such psychological variables as time and environment that influence the entrepreneur as well as psychological invariables as personality traits that are relatively stable and exhibit regularity by being recognised through generations.

## **The concept of personality**

In psychology terminology, the concept of personality is of neutral value. The first Norwegian professor in psychology, Harald Schelderup described the core terminology in a definition from 1959: “By personality, we understand the more or less tightly but holistic organized way, in which it is characteristic for an individual to act in thought, feeling and behavior” (Kaufmann & Kaufmann, 2008). Since feelings derive as an outcome from thoughts and perceptions and simultaneously affect behaviour according to the individual’s level of self-control, then the definition needs to be revised.

Personality is a complex concept in which the parameters: perception, thoughts and behaviour, are crucial to get the full picture on what is actually taking place. Additionally, besides the innate determinants, the external social incidents according to childhood, environment, the past as well as the future (e.g., disasters during their youth, current opportunities and upcoming entrepreneurial learning programmes) impact on the personality of any individual in dissimilar ways. The individual’s ability to fulfil the task either in a positive or negative way appears to be related to both the innate invariable psychological factors and the external incidents, which are referred to as the psychological variables. The psychological variable factors are further described in figure 1. Initially, Schelderup’s definition is revised in order to approach the psychological invariable factors:

*The concept of personality is defined as a specific individual’s steady organised conglomerate of psychological characteristics which in a unique differentiation creates current recognisability and future predictability in relation to perception, thoughts and behaviour.*

When the concept of personality gives some benefit to theory development in practice, two things matter: first, the need to outline the parameters that are actually measurable with the current measurement tools; second, it is important to extract the accurate traits or parts of the entire personality that express the best possible required personality traits for a purpose, for instance in entrepreneurship research, in leadership selection or any other case in point.

As an example, Kets de Vries generalises from a case study that the entrepreneur emerges from a tough childhood turning the tables to be an entrepreneur, as mentioned before (Kets de Vries, 2009).

On the contrary, Østergaard found in a comprehensive research case study that the opposite was dominating for three successful people, though six out of the nine successful individuals truly had a childhood dominated by death, violence, sickness and/or absence. Thus, there is no evidence that a successful entrepreneur needs to emerge from a bad childhood, but it is often the case (Østergaard, 2003).

## **A historical lens on the concept of personality as a partial explanation**

Throughout history, the beneficial qualities of the concept of personality have been proved. Regardless of the fact that, there have been many disagreements about the correct content and the utilisation of this concept. However, knowledge on how the concept appeared and developed enhances the appreciation of the concept of personality. Throughout the next paragraph, the creation and development of the concept of personality is outlined very briefly.

In the West, the concept of personality was founded by the physician Hippocrates, who lived in ancient Greece from 460 – 370 BC. His main purpose was to cure his patients, wherefore; he developed the four humours to differ between diverse types of patients and the best treatment for each type of patient. As of the late 19th century and up to the beginning of the 20th century, the two educated physicians and trained psychiatrists Sigmund Freud and Carl Jung developed a theory to interpret personality. For 7 years they agreed, but afterwards they moved in two different theoretical directions.

Freud launched the Psycho Analysis in which an individual's behaviour is understood by their motives, drives, needs and conflicts in interaction. Both Freud and Jung interpret dreams to reveal the unconscious power that often restrains the individual in an unwanted way. But Jung also emphasised the collective unconscious that has developed through and across mankind's history. Furthermore, Jung developed the archetypes, e.g. Mother Earth, the Dragon and the Almighty, which are universal symbols of instinctive impulses and primitive feelings.

The psychodynamic theory from the beginning of 1900 is a well-known frame for personality interpretation in professional personality development among leaders and managers, as well as for employees in business communities and organisations. Manfred Kets de Vries is an example of a scholar, who explains leadership personality in academia in the theoretical tracks of Freud, and concurrently used the psychoanalytical approach in praxis when founding INSEAD's Global Leadership Centre among his other activities.

Jung and his theoretical direction were followed and developed by Myer-Briggs<sup>1</sup>, who launched the most frequently used personality test for vocational choice and career development: MBTI. Later, it was refined as JTI, Jung's Type Indicator in Scandinavia.

When dealing with the concept of personality, the divided concept developing in the West is important, despite the amount of cross sectional and multifaceted approaches among professionals. Regardless of the theoretical disagreements between Freud and Jung, they had a lot of similarities in the treatment of their patients. Hence, Jung and Freud during their epoch of personality development

---

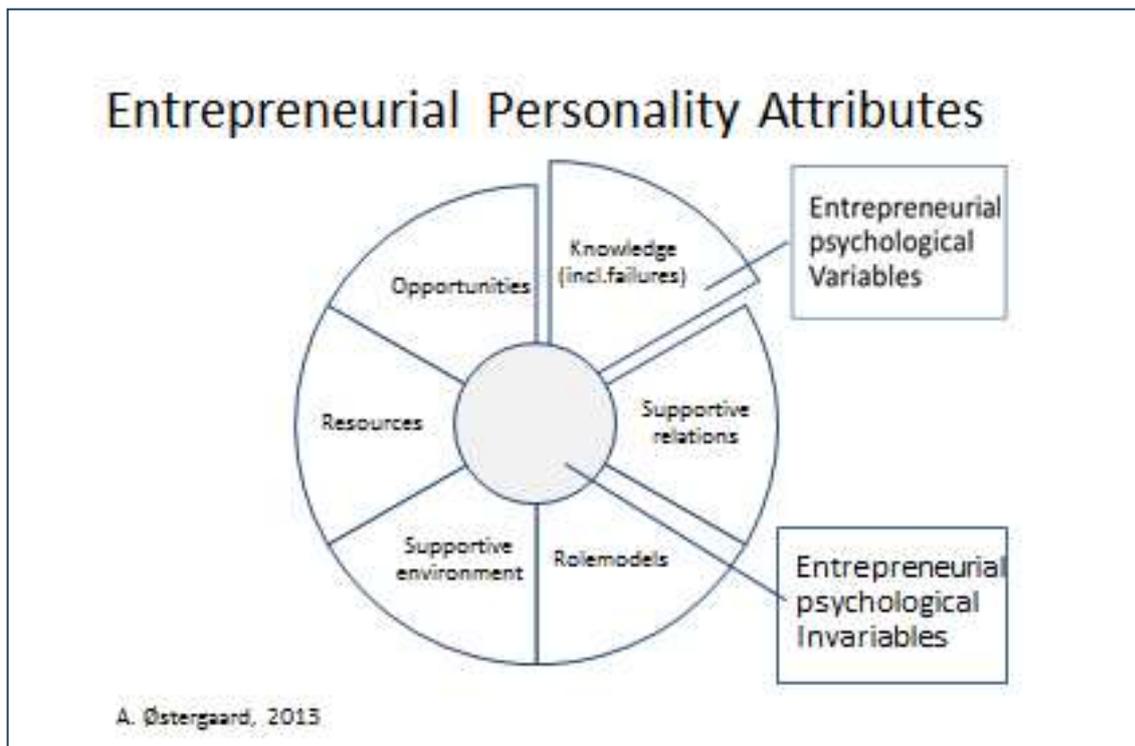
<sup>1</sup> Katharin Cook Briggs, 1875-1968 and her daughter Isabel Briggs Myers, 1897-1980 developed MBTI (Myers-Briggs Type Indicator).

continued the track of rebalancing the mind-set from Hippocrates' time. All three of their approaches were geared towards their patients' wellbeing from the original concept, with the knowledge about personality to rebalance and restore the individuals' possibility to continue an optimal fulfilment of skills, potentials and wishes. Freud and Jung added specifically the power and wisdom from the unconscious, revealed from, e.g. dreams, to the gentle personality treatment of Hippocrates.

### Personality traits framed by The Psychological Variable Wheel

As we scarcely can get around the concept of personality, the aim is to make the concept useful. For instance, the matter of measuring the entrepreneurial personality is useful for the purpose of enhancing the benefit of entrepreneurship in societal prosperity; but when the measurement fails, the interpretation or the selection of traits fails, and the usability is diluted.

However, it is not possible to measure a concept, unless the concept is broken-down to manageable pieces that make sense and allow us to keep an overview. According to the entrepreneurial personality, there are psychological variables and psychological invariables. The psychological variables are important to know about and to be aware of, such as the knowledge from which the entrepreneur makes his or her decisions. Moreover, which supportive relations are available at the moment, and what kind of role models dominated from the childhood up until the present? Furthermore, what are the current resources, the current support from the environment and the current amount and quality of opportunities? Some of these psychological variables are unconscious, but the conscious psychological variables are countable at a given time and comparable to other datasets and alike.



**Figure 1** The Psychological Variable Wheel Model of Entrepreneurial Personality Attributes

The psychological variables are seen as the tyre on a wheel with the psychological invariable in the centre, as demonstrated in figure 1. The wheel swivels around along with the time, and today is unlike

yesterday because the psychological variables change all the time, opposite the psychological invariables. Only, the psychological invariables must be measured beyond consciousness to get valid results. On the other hand, there is a common knowledge on how long lasting pressures such as, e.g. unemployment, severe disasters etc., influence people to develop stress disorders and depression. In conclusion, the psychological invariables are influenced over time in cases without consolations. However, in general, the reliability of test-retest is very high over the years, when measured correctly.

Emmy E. Werner and Ruth S. Smith conducted a longitudinal study on life-changing events and found that the most resilient individuals were described by their caregivers as “very active” already as infants. Moreover, specifically the girls were described as “affectionate” and “cuddly”, where the boys were described as “good-natured” and “easy to deal with”. They also found a direct link between Early Stressors and Adult Coping Problems (Werner & Smith, 1992, p. 56). Due to Werner & Smith’s longitudinal study, the paper suggests that an individual has psychological invariables, which among others affect resilience: a typical entrepreneurial characteristic. Moreover, Werner & Smith’s study enlightens how incidents in the process of a life span impact these psychological variables.

In contrary, personality traits are the relative constant and lasting aspects of the personality. In other words: traits are seen as the structure of personality. Astrid and Geir Kaufmann explain human behaviour with Structure besides or opposite the Process, which refers to the dynamics and the incidents during life (Kaufmann & Kaufmann, 2008). In this paper, the structure is embodied in the psychological invariable and the process embodied in the time and environment, dependent upon the psychological variable. The process-connected concepts or psychological personality variables constantly nudge the current whole personality pattern throughout life through upbringing, learning and experience. The converse is through traits that only evolve slightly over time, but not overnight. Thus, the pressure on the individual must be either considerable or long-standing in nature and extent before an impact on the personality trait pattern changes to a great extent, either it is in a negative direction or towards successful goals.

In other words, the personality, especially with its psychological variables, is changeable through learning and therefore, interesting to deal with.

## **Lessons to be learned from leadership research on personality traits**

According to personality traits in entrepreneurship and leadership, an in depth investigation needs enhancing for at least a decade to catch up with the interfering psychological variables. Besides, the accumulated knowledge from the intersection of leadership and entrepreneurship, learning provides great value to the entrepreneurial personality traits (Cogliser & Brigham, 2004).

Leader trait studies have been investigated by historic reviews which outline categorical patterns and models. (Zaccaro, 2007) For instance, Derue et al. found in 2011 that the previous research mainly builds upon three categories: firstly demographic, with attention on gender effectiveness. Secondly, task competences such as performance and execution (Bass & Bass, 2008), intelligence, conscientiousness and the traits of openness to experience and emotional stability. And thirdly, interpersonal attributes in social interactions including the traits of extraversion and agreeableness (Hoffman, 2004). Unfortunately, this categorisation falls into the pitfall of mixed concepts. Thereby, the referred to research has mixed the measuring of apples and oranges, which are combined and compared as fruit. However, these “fruit results” must remain mixed, or not combined or compared at

all in the beginning. A similar measurement consideration goes for the entrepreneurial diffusion in the paragraph above.

Zaccaro mentions another line of categorisation when working with distal characteristics that are dispositional and trait-like, and proximal individual differences which are malleable or state-like such as knowledge and skills. Zaccaro expects the changed focus from traits to proximal to enhance scholars' possibility to answer the famous question of born or made. In general, more leadership traits are expected to be added to the already known traits. (Zaccaro, 2007; Zaccaro, Foti, & Kenny, 1991) In this context, Zaccaro's distribution in respectively distal characteristics and proximal individual differences matches the psychological invariables and the psychological variables. The suggested homogeneous conceptualisation appears to be an advantage to enhance the broad understanding in a fuzzy research field.

Jay N. Hoffmann and others examined leaders effectiveness according to the two categories, and found that the distal individual differences measured as achievement motivation, energy, dominance, honesty/integrity, self-confidence, creativity and charisma; as well as the proximal individual differences of interpersonal skills, oral communication, written communication, management skills, problem solving skills and decision making were both strongly related. In conclusion, Hoffmann found that the two categories had a similar relationship with effective leadership. (Hoffman et al., 2011) Hence, the argument for only using one or the other is straightforward, and some scholars prefer the antagonistic measurement style (Stewart, 2007). However, this paper suggests full attention on the precondition before measurement, carefully measuring and comparing equal concept results.

## **A literature review of the individual level in research clarifies the interest**

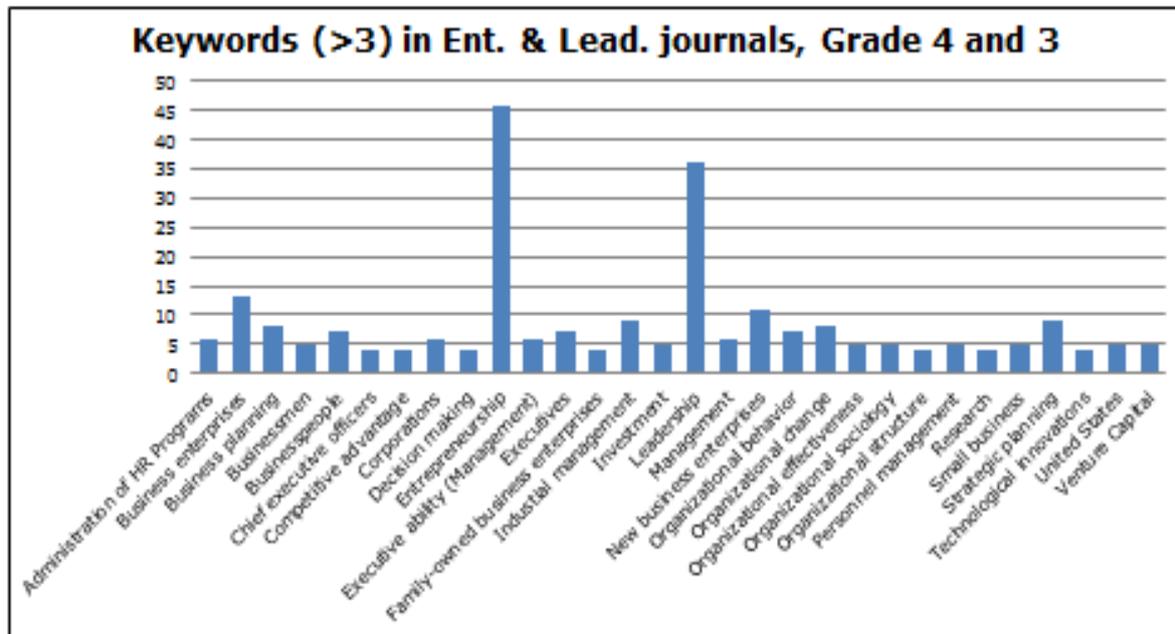
In academia, the individual level is lacking according to a literature review in Leadership and Entrepreneurship Journals; most of the literature is concerned about the firm level, the strategic level, the theoretical level and to some extent, the family business level. However, scholars find that the entrepreneurship research is parallel to the leadership research, with the advantage of learning profitably from the previous results from the leadership research (Baum, 2004; Chandler & Lyon, 2001; Coglisier & Brigham, 2004; Low & MacMillan, 1988; Vecchio, 2003; Wiklund, Davidsson, Audretsch, & Karlsson, 2011).

Moreover, the findings of a common psychological invariable are expected to increase by searching for the entrepreneurial personality as well as the leadership personality. Thus, the search for entrepreneurship and leadership on the individual level in the sections for entrepreneurship and leadership was conducted. The traditional field of entrepreneurship and leadership literature is in three sections; Entrepreneurship and Small Business Management, General Management, and Organisational Studies, which amount to 9 % of 821 journals (ABS Journal Guide). The search was conducted for Entrepreneur\* AND Leader\* in Abstracts by the database: Business Source Complete with the limitation of Academic journals and of Grade 4\*, 4 and 3 journals.

During the literature review, the keywords become talkative. The keywords of an article are the shortest identification of the themes represented in the journals, like a shortcut to the essence. Hence, the keywords were extracted, which is demonstrated in figure 2.

The keyword analysis outlines the variation and the number of keywords that have been used more than 3 times up until June 2013, with the absolute majorities being Entrepreneurship (24 times) and Leadership (33). The personality of the individual entrepreneur and the individual leader was hard to

find directly. On the other hand, keywords like Businessmen (2), Businesspeople (6), Chief executive officers (3) and Executives (7) demonstrate an interest in the personal aspect, even if it is weak. The keywords: Decision making (4), Organisational behaviour (7), and to some degree Executive ability (6) and Personnel management (2) demonstrate interest in the way that the entrepreneur and the leader behave. The remaining keywords are mostly at the firm and strategic level. In general, high graded journals focus more on theoretical, strategic and business levels than the individual level when it comes to entrepreneurship and leadership. The obvious reason could be that the topic is uninteresting, but underneath the correct reason could be that the diffusion on concepts and measurement challenges preclude decent research in this field.



**Figure 2** Systematic Literature Review on Keywords in Entrepreneurship and Leadership Journals in June 2013

## The challenges of measurement methods

According to the purpose of avoiding measurement pitfalls, a concept must be measured with full agreement among scholars of what the concept actually means, otherwise failure and mistakes are impossible to eschew. However, the overall presence of agreement does not exist if the concept of personality is a stable and trustworthy concept. For instance, scholars such as Walter Mischel incline to the view that the social factor matters are affected most by people's behaviour. (Mischel, 1990)

In order to enhance for example the prosperity of the nation, the investigation needs to increase in the measurement method used for measuring entrepreneurial behaviour. Likewise, increased research on measuring the personality will enlighten research about the entrepreneurial behaviour, since behaviour does not cover the full personality. A certain behaviour can be professionally chosen by an

individual or be an unconsciousness reflection caused by anxiety or a mix in between. Then, scholars also have to deal with the discussion about entrepreneurial behaviour being learnable.

In the process of making qualified research, entrepreneurs must be differentiated from each other at first. Second, their behaviour has to be mapped (S. Sarasvathy, 2008; S. D. Sarasvathy, 2003) and translated, via the psychological mechanism that causes behaviour. Third and first then: the measurement. Afterwards, development of new handy research tools is possible in the track of known personality tests that measure strengths and weaknesses and are based on the full picture of the concept of personality. On the other hand, the measurement endeavour could be the best avenue for distribution of different types of entrepreneurs into categories.

## **Measurement Theory and Measurement Tools**

To repeat, an individual's personality consists of a structure with innate personal elements, including for example inheritable talents of math or music, and a process where incidents affect the person over time and in different amounts through culture and role models. In other words, the structure part consists of psychological invariables, where personality traits occur. As a result of the ongoing interest in the question of born or made according to the personality and the concept in general, personality theories have developed in different directions. Hence, one direction of personality theory building refers directly to Freud and Jung. According to theory on personality trait in vocational life, the segregation has been about Cattell's 16PF and Costa and McCrae's Five Factor Theory, but they have slid towards each other over time.

Raymond Cattell distinguishes between profound and superficial traits. A typical in-depth trait: the tendency to dominate versus submissive, and also: dependent on others versus autonomous (Pervin & John, 2001). According to Cattell, in-depth traits are the bricks of personality, which correspond to the presented psychological invariables. Cattell developed his personality test over 50 years by factor analysis on more than 18,000 personality descriptive adjectives. Thereby, Cattell found 16 basic personality traits: The 16PF is recognised as one of the best scientific methods to map personality. The 16 personality factors are arranged as 16 pairs of contradictions, with a scaled measurement between the 16 pairs that are diametrically opposite.

The five factor theory by Paul T. Costa and Robert R. Mc Crae is measured in Five Big factors, seen as traits, which are divided into 6 sub factors. (Mc Crae, 1992) Lately, the Big Five model has increased its influence, especially in academia. Since, The Big Five-model is covered by Cattell's 16 Personality Factors, it is right to conclude that the human personality is intimately linked with five superior personality trait-spans with subcategories. The five factor-model measures on a scale from low to high on 5 factors, but at the same time these endpoints are described as contradictions. Nowadays, The Big Five is measured on a 60 item test, NEO PI-R (Neuroticism Extroversion Openness – Personality Inventory-Revised), where the original test from 1978, NEO-I (NEO Inventory), had several items and combines self-score with observations.

Similar to Cattell, Costa and Mc Crae, John Holland developed a personality test related to vocational choice. Holland found 6 personality types, where some have a lot in common and some are more opposite to each other. Holland developed a hexagonal classification model, where people will place themselves somewhere in the middle according to the amount of each of the six types they have. The hexagonal model is empirical and very well-tested (Holland, 1966; Holland, 1997). Theoretically, Holland's model and thoughts about the congruence between personality and vocational choice seems

to be tenable (Spokane, 1985). Holland's work speaks in favour of a psychological invariable that provides the individual to select certain jobs and educations. Moreover, the results from Holland's Hexagonal Model (RIASEC-model) indicate that the lasting of personality invariables, called traits is only stable to a certain point.

In summary, through history the most frequently used personality tests are the MMPI (Minnesota Multiphasic Personality Inventory) by Starke R. Hathaway and J.C. McKinley in 1939, CPI (California Psychological Inventory) by Harrison Gough in 1956, 16 PF ( 16 Personality Factors) by Raymond Cattell in 1946 and NEO-PI-R (Revised Neuroticism-Extroversion-Openness Personality Inventory) by Paul T. Costa and Robert R. Mc Crae. The first version was published in 1978 and the revised version is a 240-item measure of the big five personality traits. The Big Five is the shortest and most commonly used version to measure the five personality traits with 60 items.

### **Pitfalls about the measurement tool: Personality Tests**

The pitfall about Cattell's test is connected to the antagonistic test-design, because there is enhancing evidence that an individual's personality accommodates the full palette of these personality factor-pairs. The entrepreneur has the ability to cover the full palette from white to black, and s/he uses this daily "the grey tones in between white and black". For instance, entrepreneurs see things from two sides, for example their own side and their discussants side simultaneously, and thereby they can change opinions in a second, if the arguments from the opponent seem more prosperous. Kets de Vries describes this phenomenon as "The tendency to split", which is connected to an either-or thinking (ideal-bad) plus fear. (Kets de Vries, 2009). This ability is even better met by the term 'Paradox Elasticity', which is the ability to use the span in dichotomy in order to act adequately in a given situation (Østergaard, 2003). The ability derives from a basic biphasic personality trait that allows an individual to escape from fear and move towards food or reproduction (Siebert, 1996). Moreover, Erwin Kauffman's recipe for successful leaders is to work hard and have fun; while John Eggers and Raymond Smilor point out that entrepreneurs must manage paradoxically and create change (Smilor & Sexton, 1996).

The pitfall on 'The Big Five' is a simple measurement, no matter how the test is developed from a comprehensive test; and secondly, that the test nowadays is well known as public property from the internet. According to the rule of thumb, there should be more than 10 questions (items) pointing towards each trait or sub trait to ensure in-depth validation. For instance, a question about outdoor activities is primarily answered with a current environmental related opinion, which does not include other seasons, the childhood or an optimal environmental-related answer. Moreover, the popularity and the familiarity from the internet interfere with the purpose of the test, which among others is to reveal the unconsciousness. Furthermore, the popularity and especially the high degree of knowledge enhance the risk of predictable answers. At last, the validation of the 60-item version does not automatically convey personality, since the first version contented both test scoring, self-scoring and interviewing. Similarly, Dåderman and Basinsky recently describe the validity challenges from their empirical research when using an abbreviated Basic and Earning Self-Esteem Scale in proportion with original longer versions (Dåderman & Basinska, 2013).

## **Full profile versus single trait in Entrepreneurial personality measurement**

After dealing with the question on which personality test should be used when the entrepreneurial personality is measured, the next question in line is: which personality traits should be measured to picture the entrepreneur as valid and reliable?

Andreas Rauch and Michael Frese found a new pattern of personality traits matching entrepreneurship in a meta-analysis in 2007: self-efficacy, proactive personality, tenacity, need for achievement, stress tolerance, goal orientation, need for autonomy, innovativeness, endurance, flexibility and passion for work (Rauch & Frese, 2007). The meta-analysis was drawn from 116 independent samples from 104 different articles, from which 54 studies tested relationships between owners' traits and business success. Twenty-seven studies came from sources other than peer-reviewed journals. They made a search in seven databases, some conference proceedings and six journals: *Journal of Applied Psychology*, *Academy of Management Journal*, *Administrative Science Quarterly*, *Journal of Small Business Management* and *Journal of Business Venturing* (1985-2006). Moreover, they specifically excluded single item measures of owners' traits because of unreliability. An expert panel rated 11 traits out of 51 traits to be entrepreneur related, whereas "tenacity" and "passion for work" had not been studied frequently enough to be included in separate meta-analyses for entrepreneurship task related personality traits. As an example, "proactive personality" has been studied 5 times, and "need for achievement" 31 times in relation to success. Conversely, frequently used traits in the literature such as "internal locus of control" and "risk taking" were not included in one table (2 times), but in others (4 times) causing a disagreement of relevance in the expert panel. The expert panel seems to be the main concern in the analysis.

Rauch & Frese found that business owners' personality traits were positively related to business creation and business success, in contrary to the conclusions of Howard Aldrich's claim on empirical death of research on personality traits due to small correlations between traits and entrepreneurial behaviour (Aldrich, 1999); which was also supported by Low & McMillan's narrative reviews (Brockhaus & Horwitz, 1986; Gartner, 1989; Low & MacMillan, 1988). Rauch and Frese found that the relationship is moderate, but about the same size as the correlation between personality traits and leadership, and also personality and performance in general (Rauch & Frese, 2007, p. 369). New perspectives and suggestions to the academic discussion interfere along the way, such as Norris F. Krueger, Michael D. Reilly and Alan L. Carsrud's finding about "intention" as the best predictor of behaviour (Krueger Jr, Reilly, & Carsrud, 2000; Valencia-deLara & Araque-Hontangas, 2012).

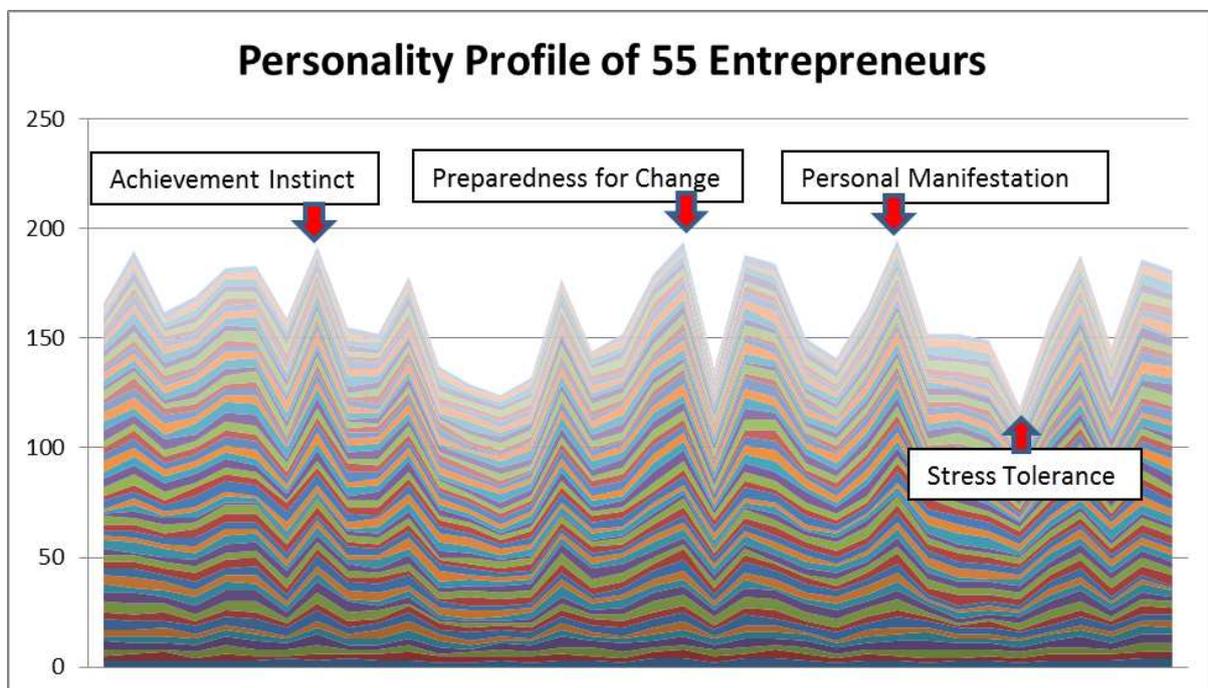
The ongoing discussion about personality traits as predictors for entrepreneurial behaviour is down the line characterised by referring to non-comparable measurement results without mentioning the precondition for the measurement, the differences of the compared search, the theoretical background of the used measurement results or the distinction between the applied concepts and their interrelationship. From above, a proactive personality is a trait in Rauch and Frese's analysis, and readers know nothing about how it was measured in the referred articles, or if it was a main category or a subcategory.

Pilar Valencia-deLara and Natividad Araque-Hontangas concur with the view demonstrated in the description of the psychological variable wheel (figure 1), and they see personality characteristics and entrepreneurs' attitudes to be considered as complementary, not opposites; contributing to a more generally predicted behaviour allowing normal and stable subjects to have both circumstantial and temporal behaviour (Valencia-deLara & Araque-Hontangas, 2012, p. 352). Scholars argue for a distinction between personality traits and attitudes, due to the consideration of stable traits throughout

life preserved under any circumstances. Attitudes or general characteristics are found to be changeable when adapting to circumstances (McCline, Bhat, & Baj, 2000; Robinson, Stimpson, Huefner, & Hunt, 1991).

The statement is supported by an empirical personality survey: The Østergaard Survey 2012<sup>2</sup>, which extracts the personality profile of 55 Entrepreneurs. The survey has no intention to stand significant in this paper, which is why there are no comparisons to, e.g. non-entrepreneurs. Instead, the survey result exemplifies crucial topics dealing with the measurement of entrepreneurs' personality and personality traits: Enhanced attention towards the full picture of an entrepreneur is used to reveal new knowledge on the psychological invariables and afterwards on the psychological variables. The psychological variables and psychological invariables differ from one entrepreneur to another and one kind of entrepreneur from another kind. A renewed attention on the whole personality of an entrepreneur will guide a future differentiation between entrepreneurs and enlighten the separate characteristics of the self-employed, a serial entrepreneur and a family dynasty builder, etc.

During the survey, some common personality characteristics appeared. The six most overall dominating traits were: personal manifestation, preparedness for change, achievement instinct, risk willingness, autonomy and vigour. Then, the six lowest scores of personality traits and therefore, the ones with the weakest appearance in the entrepreneurs' unconscious behaviour were: stress tolerance, social maturity, tolerance, democratic attitude, experience of well-being and adaption capacity.



**Figure 3** The Personality Profile of 55 Entrepreneurs. The Østergaard Survey 2012

<sup>2</sup> The Østergaard Survey was conducted on 55 entrepreneurs in 2012 with a personality test: 480 items, 36 traits, standardised on 840 individuals, validated through more than 8,000 interviews. Reliability coefficient is + 0.9 over 1 year and + 0.7 over 5 years, 21 - 52 items lead to each personality trait, items on a Likert scale from 1 to 4 avoiding the middle score.

The survey results confirm previous research results according to, e.g. risk willingness, achievement instinct, and autonomy (Hoffman, 2004; Judge, 2002; McClelland, Winter, Larrere, & Nathan, 1998; McClelland & Burnham, 2003; McClelland, 1987). In addition, the table shows the lowest score, which directly gives an insight into the dark side of entrepreneurship personality and draws attention to the issues of being aware of, e.g. governmental aid programmes and entrepreneurial learning in High Schools and Universities.

Regardless, an entrepreneur is often described as resilient and ‘waking up with a smile’, the reverse of the coin is that the amount of energy is limited for everybody, even it is supposed to be on a higher level for an entrepreneur. Hence, the entrepreneur needs to cover many functions in their daily life; they need a supporting environment to keep up. Otherwise, the entrepreneur risks not experiencing well-being, which affects their ability to collect enough resources to innovate and create growth. Regarding the need for different types of talent and knowledge for solving everyday challenges, the entrepreneur risks an increased stress level, which makes the entrepreneur rather vulnerable. A mentor, who bears it all patiently, could be the answer for securing effectiveness in that matter. Moreover, the amount of bankruptcies of enterprises in the first three years may decrease with a new focus on the lowest score.

| <b>Ranked Score</b> | <b>Personality Trait</b> | <b>FunctionalCategory</b> | <b>Basic Aptitude</b>      |
|---------------------|--------------------------|---------------------------|----------------------------|
| <i>HIGHEST 1-6</i>  |                          |                           |                            |
| 1                   | Personal Manifestation   | Vitality                  | Innovation Potential       |
| 2                   | Preparedness for Change  | Growth                    | Innovation Potential       |
| 3                   | Achievement Instinct     | Efficiency Management     | Leadership Potential       |
| 4                   | Risk Willingness         | Change Management         | Leadership Potential       |
| 5                   | Autonomy                 | Integrity                 | Potential of Effectiveness |
| 6                   | Vigour                   | Power                     | Innovation Potential       |
| <i>LOWEST I-VI</i>  |                          |                           |                            |
| I                   | Stress Tolerance         | Integrity                 | Potential of Effectiveness |
| II                  | Social Maturity          | Co-operation              | Social Potential           |
| III                 | Tolerance                | Co-operation              | Social Potential           |
| IV                  | Democratic Attitude      | Co-operation              | Social Potential           |
| V                   | Experience of Well-being | Growth                    | Innovation Potential       |
| VI                  | <b>Adaption Capacity</b> | <b>Interaction</b>        | <b>Social Potential</b>    |

Source: The Østergaard Personality Survey, 2012

**Figure 4** Ranked score on the Six Highest and the Six Lowest Personality Trait, the Functional Categories and the Basic Aptitudes of 55 Entrepreneurs. The Østergaard Survey 2012

### **The precondition of measurement**

As previously mentioned, the precondition needs more careful consideration. Joseph Luft and Harry Ingham pointed out that a fourth of our knowledge is hidden, when they introduced their matrix of insight and self-awareness in JoHari’s Window from 1970. The same pattern occurs for measurement with self-score, which also represents only a fourth of the personality, namely the visible facade of our personality. In other words, to cover the full picture of an individual, it is necessary to include the unconsciousness in the measurement. Obviously, researchers can learn from Herman Rorschach’s inkblot test or include unconscious answers by implicating more than 10 well developed items for each trait in the personality test measurement. Furthermore, general and evident preconditions should be mandatory before measurements; which are outlined in figure 5.



## Conclusion

The challenges of the entrepreneurial personality and the measurement methods are examined in this paper along with suggestions to solve them.

Whether the position is for or against the concept of personality, the lesson to learn from the original use of the concept of personality is that the great advantage appears when suitable descriptions of individuals are used that are obtained from well-adapted measurement tools. In general, behaviour, thoughts and perception bring the personality to light, not motives or intensions. Exactly as children “read” behaviour, thoughts and perception precisely to behave well or not in relation to an adult. Furthermore, our knowledge from ancient times about people being classified as different or with distinct patterns must interact with the current knowledge applying for updated measurement methods.

Thus, besides stable personality traits in the entrepreneurial personality, the psychological variable needs increased attention. The previous mentioned concepts such as behaviour, motives, values etc., are often used separately as the expression of the entire personality; but it is necessary to include and combine several of them in a more complex and holistic model, as presented in figure 1 by the means to clarify and to be exact about acknowledging the personality with all the psychological variables and the psychological invariables. Consequently, the optimal framework for measuring individuals covers the full picture on psychological variables and psychological invariables, plus the process; which means that longitudinal studies are desirable. The latter is supported by scholars in general. Due to a summary of the most frequently used personality tests, their pitfalls and empirical research, the paper suggests that a full picture of the entrepreneurial personality reveals more helpful knowledge, which is demonstrated in figures 3 and 4, than single trait research achieves; which is why it is suggested to increase future research on a holistic track.

In addition, this article states that the entrepreneurial behaviour is not reserved to economical and vocational related behaviour. In contrary, entrepreneurial behaviour involves everything the entrepreneurs think, cope with and might achieve. The advantage of a full personality test measurement is suggested to avoid current interest in specific behaviours and specific identifying personality trait scores, instead revealing both the highest and the lowest scores, providing a better overview that lasts longer and is comparable with other research results. From the survey results, it is suggested that one main reason for entrepreneurs not to succeed is an increasing amount of specific, individual related stressors which negatively affect their effectiveness. In addition, the survey result points out that an area of problem is the entrepreneur’s preference for working alone and “knowing best”. This social immature tendency requires patient, mature, and charitable mentors, business angels, and coaches who are familiar with the overall theme and in best cases are entrepreneurs themselves. In conclusion, the entrepreneur enhances his or her chances to spot the overwhelming stressors and find solutions through a supporting environment with the right social relationships. As a consequence, governmental programmes would benefit from further investigations of these issues to increase the success rate of entrepreneurs.

Finally, instead of measuring single or non-comparable details pulled through statistical analysis, the knowledge and future mandatory use of the precondition components as described in figure 5, and valid measurement tools are suggested as a warranty for future usable achievements.

## References

- Aldrich, H. (1999). *Organizations evolving* Sage.
- Baum, J. (2004). The relationship of entrepreneurial traits, skill, and motivation to subsequent venture growth. *Journal of Applied Psychology*, 89(4), 587-98.
- Brockhaus, R. H., & Horwitz, P. (1986). The psychology of the entrepreneur. 1996) *Entrepreneurship: Critical Perspectives on Business and Management*, 2, 260-283.
- Chandler, G. N., & Lyon, D. W. (2001). Issues of research design and construct measurement in entrepreneurship research: The past decade. *Entrepreneurship Theory and Practice*, 25(4), 101-113.
- Cogliser, C. C., & Brigham, K. H. (2004). The intersection of leadership and entrepreneurship: Mutual lessons to be learned. *The Leadership Quarterly*, 15(6), 771-799.
- Dåderman, A. M., & Basinska, B. A. (2013). Exploring the factor structure and the validity of the abbreviated basic and earning self-esteem scales. *Nordic Psychology*, 65(3), 242-258.
- Davidsson, P. (2005). *Researching entrepreneurship*. US: Springer.
- Davidsson, P. (2008). *The entrepreneurship research challenge*. Cheltenham, UK: Edward Elgar.
- Gartner, W. B., Shaver, K. G., Gatewood, E., & Katz, J. A. (1994). Finding the entrepreneur in *Entrepreneurship*. *Entrepreneurship: Theory and Practice*, 18(3), 5-9.
- Gartner, W. B. (1989). "Who is an entrepreneur?" is the wrong question. *Entrepreneurship: Theory and Practice*, 12(2), 47-68.
- Hoffman, J. N. (2004). Building resilient leaders. *Leadership*, 34(1), 35-38.
- Holland, J. L. (1966). *The psychology of vocational choice*. US: Blaisdell Publishing Company.
- Holland, J. L. (1997). *Making vocational choices. A theory of vocational personalities and work environment*. Englewood Cliffs, NJ: Prentice-Hall.
- Judge, T. A. (2002). Personality and leadership: A qualitative and quantitative review. *Journal of Applied Psychology*, 87(4), 765-80.
- Kaufmann, G., & Kaufmann, A. (2008). *Psykologi i organisation og ledelse [Psykologi i organisasjon og ledelse]*. Copenhagen: Akademisk Forlag. doi:978-875-00-3931-0
- Kets De Vries, M. F. R. (1977). The entrepreneurial personality: A person at the crossroads. *Journal of Management Studies*, 14(1), 34-57.
- Kets De Vries, M. F. R. (1996a). The anatomy of the entrepreneur, clinical observations. *Human Relations*, 49(7)

- Kets De Vries, M. F. R. (1996b). Leaders who make a difference. *European Management Journal*, 14(5), 486-493.
- Kets De Vries, M. F. R. (1999). Managing puzzling personalities: Navigating between "live volcanoes" and "dead fish". *European Management Journal*, 17, 8-19.
- Kets De Vries, M. F. R. (2006). *The leader on the couch: A clinical approach to changing people and organizations*. New York: John Wiley & Sons.
- Kets De Vries, M. F. R., & Engellau, E. (2004). *Are leaders born or are they made? the case of alexander the great*. London: Karnac.
- Kets De Vries, M. F. R., & Florent-Treacy, E. (2002). Global leadership from A to Z: Creating high-commitment organisations. *Organisational Dynamics*, 30(4), 295-309.
- Kets De Vries, M. F. R., Korotov, K., & Florent-Treacy, E. (2007). *Coach and couch: The psychology of making better leaders*. New York: Palgrave/Macmillan.
- Kets de Vries, Manfred F. R. (2009). *Reflections on character and leadership*. West Sussex, England: John Wiley & Sons.
- Krueger Jr, N. F., Reilly, M. D., & Carsrud, A. L. (2000). Competing models of entrepreneurial intentions. *Journal of Business Venturing*, 15(5), 411-432.
- Low, M. B., & MacMillan, I. C. (1988). Entrepreneurship: Past research and future challenges. *Journal of Management*, 14(2), 139-161.
- Mc Crae, R. R. (1992). Special issue: The five-factor model: Issues and applications. *Journal of Personality*,
- McClelland, D. C., & Burnham, D. H. (2003). Power is the great motivator. *Harvard Business Review*, 81(1), 117-126+142.
- McClelland, D. C., Winter, D. G., Larrere, J., & Nathan, M. (1998). Identifying competencies with behavioral-event interviews. *Psychological Science*, 9(5), 331-339.
- McClelland, D. C. (1987). Characteristics of successful entrepreneurs. *The Journal of Creative Behavior*, 21(3), 219-233.
- McCline, R. L., Bhat, S., & Baj, P. (2000). Opportunity recognition: An exploratory investigation of a component of the entrepreneurial process in the context of the health care industry. *Entrepreneurship: Theory & Practice*, 25(2), 81-94.
- Miller, D., Kets De Vries, M. F. R., & Toulouse, J. -. (1982). Top executive locus of control and its relationship to strategy making, structure, and its environment. *Academy of Management Journal*, 25, 237-253.
- Mischel, W. (1990). Personality dispositions revisited and revised: A view after three decades. In L. A. Pervin (Ed.), *Handbook of personality: Theory and research*. (). New York: Guilford Press.
- Østergaard, A. (2003). *Succesmagerne: Ni veje til succes (the successmakers - nine paths for success)*. Copenhagen: Børsens Forlag. doi:87-7553-969-1

- Oxvig-Østergaard, P. (1996). Erhvervspsykologisk testmetode. *Ledelse & Erhvervsøkonomi (Danish Journal of Management & Business)*, 60(1), 15-26. doi:ISSN 0902-3704
- Pervin, L. A., & John, O. P. (2001). *Personality, theory and research*. New York: Wiley.
- Rauch, A., & Frese, M. (2007). Let's put the person back into entrepreneurship research: A meta-analysis on the relationship between business owners' personality traits, business creation, and success. *European Journal of Work and Organizational Psychology*, 16(4), 353-385.
- Robinson, P. B., Stimpson, D. V., Huefner, J. C., & Hunt, H. K. (1991). An attitude approach to the prediction of entrepreneurship. *Entrepreneurship Theory and Practice*, 15(4), 13-31.
- Sarasvathy, S. (2008). *Effectuation*. Northampton, US: Edward Elgar.
- Sarasvathy, S. D. (2003). Entrepreneurship as a science of the artificial. *Journal of Economic Psychology*, 24(2), 203-220.
- Siebert, A. (1996). *The survivor personality*. New York: A Perigee Book.
- Spokane, A. R. (1985). A review of research on person-environment congruence in holland's theory of careers. *Journal of Vocational Behavior*, 26, 306-343.
- Stewart, P. H. (2007). A meta-analysis of achievement motivation differences between entrepreneurs and managers. *Journal of Small Business Management*, 45(4), 401-421.
- Valencia-deLara, P., & Araque-Hontangas, N. (2012). Personality traits and attitudes of an entrepreneur: An empirical study. *Actual Problems of Economics*, 129(3), 350-358.
- Vecchio, R. P. (2003). Entrepreneurship and leadership: Common trends and common threads. *Human Resource Management Review*, 13(2), 303-327.
- Werner, E. E., & Smith, R. S. (1992). *Overcoming the odds: High risk children from birth to adulthood*. Ithaca and London: Cornell University Press.
- Wiklund, J., Davidsson, P., Audretsch, D., & Karlsson, C. (2011). The future of entrepreneurship research. *Entrepreneurship Theory and Practice*, 35(1), 1-9.
- Zaccaro, S. J. (2007). Trait-based perspectives of leadership. *The American Psychologist*, 62(1), 6-16; discussion 43-7.
- Zaccaro, S. J., Foti, R. J., & Kenny, D. A. (1991). Self-monitoring and trait-based variance in leadership: An investigation of leader flexibility across multiple group situations. *Journal of Applied Psychology*, 76(2), 308 - 315.
- Zaleznik, A., & Kets De Vries, M. F. R. (1976). What makes entrepreneurs entrepreneurial? *Business and Society Review*, 17(Spring)