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The Challenge of Measuring The Entrepreneurial Personality and How to solve it

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Abstract

State of the art

So far, the scope on the concept of personality has been insufficient, which in all probability is caused of inadequate measurement tools. Since Gartner in 1989 questioned who the entrepreneur was, scholars in general agreed that personality was not central for developing the entrepreneurial field. Lately, the discussion has increased on the difficulties about measuring, the lack of clear definitions and the uncertainty of the concept of personality.

Research Gap

Time has come to reinforce the topic with enhanced measurement methods and add new knowledge. The aim of this paper is to outline the challenges surrounding the entrepreneurial personality and how to overcome the measurement challenge. Among others, the paper presents a new approach to measure the entrepreneurial personality and models to make the concept more manageable. The challenge is to measure validly and reliably with current measurement tools and to extract relevant parts of the personality. From the challenges, the paper suggests avenues to the entrepreneurial personality.

Theoretical arguments

Through a literature review, the most influential theoretical contributors are revealed and new knowledge is provided by a historical lens. Moreover, the article presents a new definition of personality with recognisability and predictability from which the parameters; thoughts, feelings and behavior are crucial to understand how an entrepreneur acts. Besides the innate determinants, the external incidents according to environment and the past as well as the future (e.g. learning programs, disasters, and opportunities) impact on the personality. Measurement tool is surrounded with a literature review on personality tests e.g. Raymond Cattell's 16 PF, Paul T. Costa & Robert R. McCrae's Five Big factor, and John Holland's hexagonal model RIASEC. The paper suggest that personality tests should withdraw the full score instead of one or few desirable traits to outline the personality pattern that identify an entrepreneur. The paper follows Per Davidsson that recommends samples from a general population instead of continuing the vague research of personality traits in primarily questionnaire from a population of entrepreneurs. Likewise, Van der Loos, Koellinger and Thurik that argue for collecting extraordinary knowledge instead of surveys in elements that is visible and obvious for

everybody.

Method

The paper presents a model considering the psychological variables and invariables adding theoretical contributors description e.g. Schumpeter's Creative Destructor, McClelland's personality traits, and Kets de Vries entrepreneur coming from a tuff childhood turning tables. The precondition for measurement is discussed and gathered in a model. The paper suggest researchers to consider; why, what and how before measuring. According to 'why?', the purpose for measurement must be clarified e.g. recruitment, or investment security. Then, deciding 'what?' to measure e.g. DNA, education, or behavior. And finally the 'how?' to measure; e.g. interviewing or financial revenue results. By questioning the what, why and how, the paper answers how to cope with the challenges by measuring a concept and an undefined person.

Results

Consequently, the optimal framework includes psychological variables and invariable plus the process e.g. by longitudinal studies. The paper suggests that future researchers deliberate the measurement on the full personality with purpose-selected measurement tools to ensure the validity and reliability as a natural precondition to any measurement. As a conclusion, this article states that the entrepreneurial behavior involves everything the entrepreneur thinks, copes with and might achieve. Moreover, the article argues to set a future precedent for measurement considers the original construction of a personality test to avoid subjective invalid answers as indicator of entrepreneurship.

The challenges of measuring the entrepreneurial personality and how to solve it!

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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, a model is presented to make the concept more manageable that integrates and differentiates the diverse elements of entrepreneurial personality attributes.

In the matter to measure the entrepreneurial personality valid and reliable, 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 is actually measurable, with which current measurement tool, and how to do it properly.

Focusing directly on the challenges, the paper suggests new measurement avenues for the entrepreneurial personality presenting solutions.

Introduction

The 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 coming from a tuff childhood turning tables to be an entrepreneur (Kets de Vries, 2009). Afterwards, the challenges and the pitfalls about these descriptions are discussed and the contributor's personality view is demonstrated on a model considering the psychological variables as well as the psychological invariables.

To make a proposition on how to measure the entrepreneurial part of the personality, the article deals with the confusion of the concept of the 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 deliberate in the future. In addition, the article presents a definition on personality that secures both recognisability and predictability. The complex facts on the personality concept are described in which the parameters; thoughts, feelings and behavior are crucial to get the full picture on what actually is taken place, when an individual entrepreneur is acting. Additionally, the core personality is seen as relative

stable and exhibit regularity. However, there is no way out that besides the innate determinants, the externals (social) incidents according to childhood, environment, the past as well as the future (e.g. upcoming learning programs, disasters, opportunities) impact on the personality of any individual. The external incidents are therefore referred to as the variables that interfere with the individual's possibility to fulfill the task either in a positive or in a negative way.

Then, the measurement tool is surrounded with focus on the lack of considering the unconsciousness in self-score measurement. Through a literature review on measurement tools on the most frequently used measurement tool 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 factor, (McCrae, 1992) and John Holland's hexagonal model RIASEC (Holland, 1966; Holland, 1997). The paper suggests, that personality tests should withdraw the full score e.g. both high and low score instead of only one to some few desirable traits, to outline the personality pattern that identify an entrepreneur. The paper follows the Swedish economist Per Davidsson (Davidsson, 2005, 2008) recommending samples should be drawn from a general population instead of continuing the vague research of personality traits in primarily questionnaire from a population of entrepreneurs. Likewise, Van der Loos, Koellinger and Thurik argues for investigation collect extraordinary knowledge from the genetic research field instead of surveys in elements that are visible and obvious for everybody. (Van der Loos et al, 2010).

At last, the precondition for measurement is discussed and gathered in a model. The paper argues that any researcher before a measurement must consider the basic question; why, what and how. First, according to the '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 e.g. DNA, education, background, personality or behavior. And finally according to the why and what, it is time to decide how to measure e.g. by interview, field observation, self-rating, psychological testing or financial revenue results.

By questioning the what, why and how, the paper answers to some extent how to cope with the challenges by measuring a concept and an undefined person.

But most important, the article argues to set a future precedent in research for measurement within personality matters that consider 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 behavior.

The challenges of the entrepreneurial personality

The descriptions of a person's characteristics is often mentioned as an individual's personality, either it is behavior, values, intelligence, motives, knowledge or cognitive style or for instance problem-solving. Since, the concept of personality is also used as a characteristic of a certain famous individual, the confusion is complete. These "personalities" indicate that personality is a kind of charisma and something

special which is only to be for the few. The confusion also hit a sore spot in research of personally characteristics of e.g. entrepreneurs in entrepreneurship, leaders in leadership, managers and talents. In the next paragraph, the definition 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 launched in the German book 'Theorie der Wirtschaftlichen Entwicklung' from Duncker und Humblat, back in 1931. In Schumpeter's all-over description with no details to measure, the entrepreneur is at the same time a highly complex individual who differs from other economist's view on the entrepreneur as a simpleton or automaton. (Kets De Vries, M. F. R., 1977, p. 37) In 1977, the Dutch economist and psychodynamic trained Manfred Kets de Vries made it clear that the term 'entrepreneur' derives from the French word 'entreprendre', to undertake and had been defined and redefined by historians, economist and sociologist. Besides the conceptual niceties, he further mentions how entrepreneurship students understand the entrepreneurs as that individual instrumental in the conception of the idea of an enterprise and the implementation of these ideas. Kets de Vries sees the entrepreneur fulfills a number of functions in this process, which can be summarized as the innovation, the management-coordinating and the risk-taking functions. (Kets De Vries, M. F. R., 1977, p. 37) All of these characteristics are connected to the behavior of a specific role, not personality traits.

Through four decades, Manfred Kets de Vries has established his work as influential management researcher, 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 issues in general, for examples about 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 the digest of his work, Kets de Vries mention six main psychological themes from an in-depth look in 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 of Kets de Vries, but they are very different in their structure. The first three are similar to trait descriptions from other scholars (see below) The fourth; tendency to 'split' is more rare, but never the less interesting and also described as the gift of seeing two sides of the same coin simultaneously. (Østergaard, 2003; Siebert, 1996) And especially the latter two are different. A description as a scapegoat is quite simply an opinion of the entrepreneur's role in society, the family or elsewhere, but it is not a personality trait. Still, very often an entrepreneur feel different from others in their priorities, work method etc. The behavior to flight into action is more a description of the entrepreneur's passion and eager to solve problems and operational goal-oriented achievement instinct. More recently, he also found the entrepreneur as moderate risk-taker, anxious, inner-directed and having an internal locus of control, which all could be described as

personality traits. (Kets de Vries, Manfred F. R., 2009; Miller, Kets De Vries, M. F. R., & Toulouse, 1982)

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

The entrepreneurial dilemma

In matter to solve the dilemma on defining entrepreneurs, there are several issues to care about: The dilemma on how to differ one type of entrepreneur from another, the differentiation between an entrepreneur and a hired CEO, a manager, an inventor, an inheritor etc, and furthermore the dilemma on how to describe an entrepreneur: with behavior descriptions, role characteristics, personality traits, motives or mindset to mention some of the options from the literature.

The moment of agreement have to be just around the corner. First, there is a need of either one definition of an entrepreneur that scholars agree on, or establishment of a new typology of different kinds of entrepreneurs that scholars agree on. 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 misinterpretation. This implies differentiation between personality traits, motives, characteristics, competences etc. Third, the necessity is highly topical of distinguishing between psychological variables as time and environment influencing issues and psychological invariables as personality traits that is recognized through generation of a specific entrepreneur. (See figure 1 for further information)

The concept of personality

In the psychology terminology, the concept of personality is of neutral value. The first Norwegian professor in psychology Harald Schelderup described the core terminology definition in 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. (G. Kaufmann & Kaufmann, 2008) As feelings are an outcome from thoughts and perception and at the same time is a way of behavior, then the definition need to be revised.

By the means to clarify and to be exact: It is necessary to include and combine several of the previous mentioned concepts in the paragraph above as behavior, motives, values etc. that is often used separately as the expression of the entire personality. A similar pitfall appears when entrepreneurship research

results are indicated by measuring a single personality trait, which afterwards is pulled through statistical analysis. In that case, scientific is actually simplified in standard that change the results to be unusable.

Personality is a complex concept in which the parameters; thoughts, feelings and behavior is crucial to get the full picture on what actually is taken place. Moreover, the personality is relative stable and exhibit regularity. Additionally, besides the innate determinants, the externals (social) incidents according to childhood, environment, the past as well as the future (e.g. upcoming learning programs, disasters, opportunities) impact on the personality of any individual. The external incidents are therefore referred to as the variables that interfere with the individual's possibility to fulfill the task either in a positive or in a negative way. In order to approach the psychological invariable factors:

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

Two things matters, when the concept of personality gives benefit to theory developing and in practice. First, it is necessary to outline which parameters actually are measurable with the current measurement tools. And second, which traits or parts of the entire personality express the needed personality angle best possible as for instance in entrepreneurship, in leadership or any other case in point.

For instance, Kets de Vries found from a case study that the entrepreneur emerge from a tuff childhood turning the tables to be an entrepreneur. In the track of Freud, Kets de Vries uses the mothers influence to explain the Entrepreneurial Life Cycle from feelings of helplessness, dependency, and rejection to proactive style with power, control and autonomy. (Kets de Vries, Manfred F. R., 2009) In contrary, Østergaard found in nine comprehensive case stories that six of the successful individuals had a childhood dominated by death, violence, sickness and/or absence, but the opposite was dominating for three successful persons. Thus, there is no evidence that a successful entrepreneur has to emerge from a sad or bad childhood. (Østergaard, 2003)

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

During history, the beneficial of the concept of personality has been proved, regardless the disagreements about the correct content and the utilization. However, the knowledge of the concept of personality enhance by the knowledge of the concepts appearance. The next paragraph outlines very briefly the launching and the developing of the concept of personality.

In the Western, the concept of personality was launched by the physician Hippocrates, who lived in the ancient Greece from 460 – 370 BC. His main purpose was to cure his patients; therefore he developed the four humors to differ between the types of patients and the best treatment for each type of patients. During a period from the late 19th century and up in the beginning of the 20th century the two physicians and psychiatrists Sigmund Freud and Carl Jung developed The Psycho Analysis. For 7 years, they were friends but afterwards they moved in opposite theoretical directions.

Freud launched the Psycho Analysis in which an individual's behavior is understood by its motives, drives, needs and conflicts in interaction. Both Freud and Jung interpret dreams to reveal the unconscious power that restrain the individual in an unwanted way. But Jung emphasized also 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 often used in professional personality development among leaders and managers and for employees in business communities and in organizations. Manfred Kets de Vries is an example of a scholar, which has remained in academia explaining especially leadership personality in the theoretical tracks of Freud and used the psychoanalytical approach in praxis by founding INSEAD's Global Leadership Centre among his other activities.

Jung and his theoretical direction were especially followed and developed by Myer- Briggs¹, who launched the most used personality test in the areas of vocational choice and carrier development: MBTI. Later, it was refined as JTI, Jung's Type Indicator in Scandinavia.

The divided conceptual developing of the concept of personality in the Western is important to remember when dealing with the concept of personality, despite the amount of cross sectional and multifaceted approaches among professionals. Regardless, the theoretical disagreements between Freud and Jung, they had a lot of similarities on the treatment of their patients. Hence, the original concept was rebalancing the mindset from Hippocrates time as well as during the epoch of Jung and Freud. All three of them approach their patient's wellbeing by the knowledge about personality and used it to rebalance and restore the individual to continue an optimal fulfillment of its skills, potentials and wishes. The contribution from Freud and Jung was especially the power and wisdom from the unconscious that they added the gentle personality adjusted treatment of Hippocrates.

Personality traits framed by the Variable Wheel Model

As we cannot 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 as in societal prosperity.

However, it is not possible to measure a concept, unless the concept is broken-down to manageable pieces that still make sense and aloud keeping an overview. According to the Entrepreneurial Personality, there are variables and invariables. The variables are important to know and to be aware of, such as the knowledge from which the entrepreneur i.a. makes his or hers decisions. Moreover, which supportive relations are available at the moment, and what kind of role models were dominating through the childhood up till present? Furthermore, how is the current resource, the current support from the environment and the current amount and quality of opportunities? Some of these variables are

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

unconscious, but the conscious variables are able to count at a given time and can be compared with other dataset. The invariable has to be measured beyond consciousness with the purpose to get valid result.

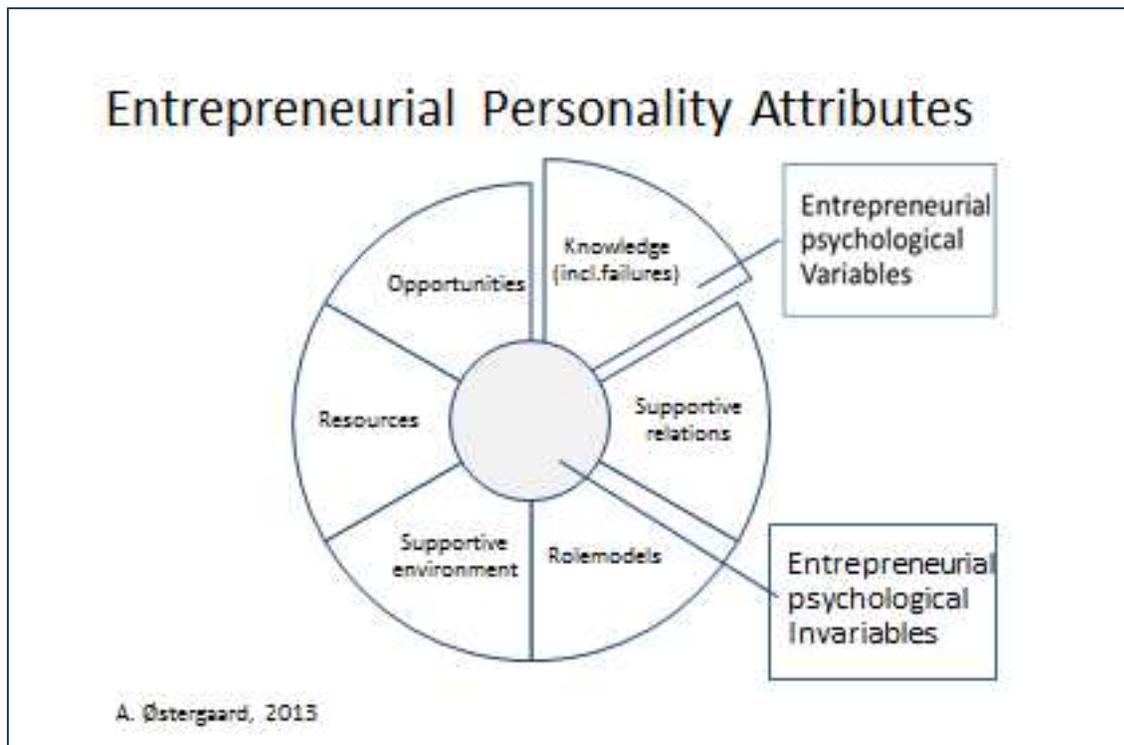


Figure 1. The Variable Wheel Model of Entrepreneurial Personality Attributes

On the other hand, there is common knowledge about how long lasting pressure as e.g. unemployment, severe disasters etc. influence people to develop stress disorder and depression. Over time, in cases without consolations, it does influence the psychological invariable. However, in general the reliability of test-retest is high over years.

Emmy E. Werner and Ruth S. Smith conducted a longitudinal study on among others Life-change Events and found that the most resilient individuals already as infants were described by their caregivers as ‘very active’. 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, it is suggested that an individual has some psychological invariable, which among others affect resilience: a typical entrepreneurial characteristic. Moreover, Werner & Smith’s study enlightens how incidents in a life span (process) impact the psychological variables.

Personality traits are seen as the relative constant and lasting aspects of the personality. In other words: trait is seen as the Structure of personality. Besides or opposite Structure is the Process that refers to the dynamic and the incidents that explain the human behavior. (G. Kaufmann & Kaufmann, 2008) In this paper the structure is embodied in the invariable and the process embodied in the time and environment depended variable as demonstrated in the Variable Wheel Model, figure 1. The process-connected concepts or psychological personality variables nudge the current personality pattern

throughout life by upbringing, learning and experience. The converse is through of traits that can evolve slightly over time but not overnight. Thus, the pressure on the individual must be either considerable or long-standing in nature and extent to impact on the personality trait pattern to a great extent, either it is in a negative direction or towards successful goals.

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

Lessons to be learned from research in leadership personality traits

The investigation in depth of entrepreneurial trait as well as leader trait needs to be enhanced for at least a decade to catch up with the variables that interfere with the personality attitudes. More specific, the knowledge to learn from the intersection of leadership and entrepreneurship is of great value to enhance knowledge on the entrepreneurial traits. (Cogliser & Brigham, 2004)

Leader trait studies have been investigated by historic reviews and outlines categorical pattern and models. (Zaccaro, 2007) For instance, Derue et al. find in 2011 that the previous research built mainly upon three categories: Demographic with attention on gender effectiveness, secondly; task competences as performance and execution (Bass & Bass, 2008), intelligence, conscientiousness and the traits 'openness to experience' and 'emotional stability', and thirdly, interpersonal attributes in social interactions including the traits 'extraversion' and 'agreeableness'. (Hoffman, 2004) Unfortunately, this categorization falls into the pitfall on mixed concepts, and thereby the referred research actually measured apples and carrots and combined the results to fruit similar to the entrepreneurial diffusion in the paragraph above.

Zaccaro mentions another line of categorization working with distal characteristics that are dispositional and trait-like and proximal individual differences, which is malleable or state-like such as knowledge and skills. Zaccaro expect the changed focus from traits to proximal to enhance scholar's possibility to answer the famous question on born or made. Overall, it must be expected that more leader trait will be added to the already known traits. (Zaccaro, 2007; Zaccaro, Foti, & Kenny, 1991)

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 both were strongly related. Therefore, Hoffmann found that the two categories had similar relationship with effective leadership. (Hoffman et al., 2011) And some scholars even prefer the antagonistic measurement style. (Stewart, 2007)

Zaccaro's and Hoffmann's argumentation is followed in this paper and caused the development of a new model to differ between variables and invariables of the entrepreneurial personality. See Figure 1 The Variable Wheel Model for further information. Specifically concerning personality attributes, it is of great value to distinguish between variables and invariables.

A literature review of the individual level in research clarify the interest

A literature review clear that the individual level seems not appreciated in academia represented in Leadership and Entrepreneurship Journals, where most of the literature concerns on; the firm level, the strategic level, the theoretical level and to some extend family business level. However, scholars find that the entrepreneurship research is a parallel to the leadership research and with advantage can learn from the previous results from the leadership research profitably. (Baum, 2004; Chandler & Lyon, 2001; Cogliser & Brigham, 2004; Low & MacMillan, 1988; Vecchio, 2003; Wiklund, Davidsson, Audretsch, & Karlsson, 2011)

Moreover, it is expected that the finding of common psychological invariable increase by searching for the entrepreneurial personality as well as the leader's personality. Thus, the search at 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 the sections; Entrepreneurship and Small Business Management, General Management, and Organizational Studies, which amount to 9 % of 821 journals (ABS Journal Guide). The search was conducted for Entrepreneur* AND Leader* in Abstract by the database: Business Source Complete with the limitation of Academic journals (which includes Harvard Business Review).

During the literature review, the keywords become talkative. The keywords of an article are the shortest identification of the themes represented in the journals, almost a shortcut to the essence. Therefore, the keywords from all papers were analyzed. Figure 2 shows the variation and the number of keywords that has been used more than 3 times up till June 2013.

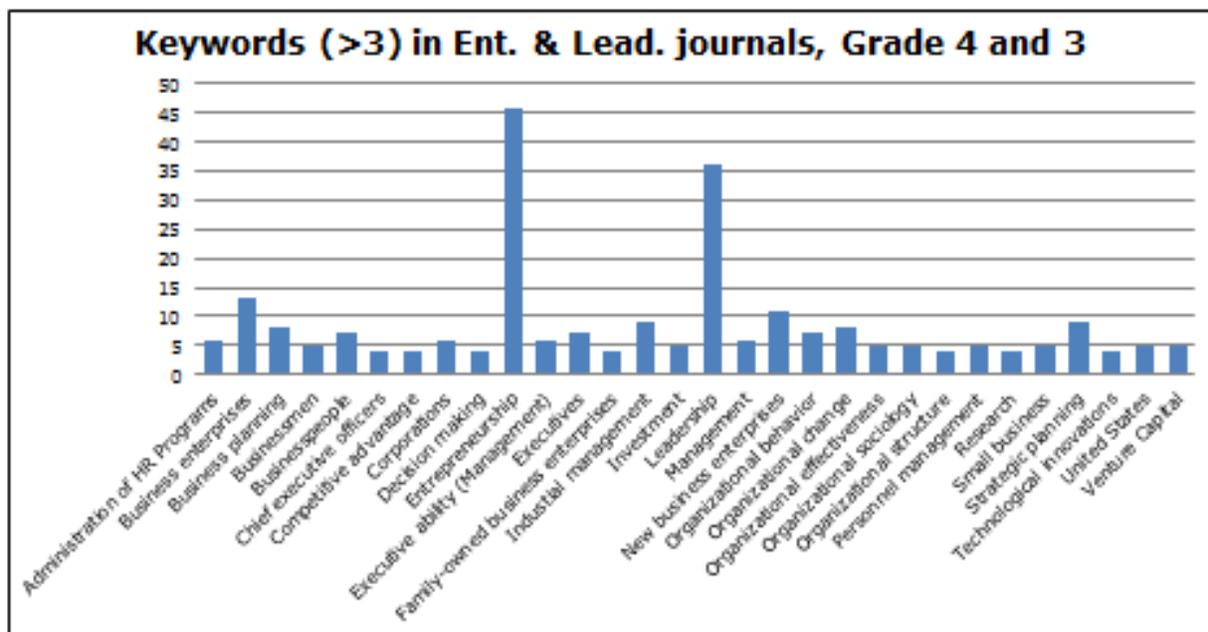


Figure 2. Systematic Literature Review on Keywords in Entrepreneurship and Leadership Journals in June 2013

The results of the literature review outlines that the personality of the individual entrepreneur and leader is hard to find directly. On the other hand, keywords like Businessmen, Businesspeople, Chief executive officers and Executives demonstrates an interest in the personal aspect. The keywords Decision making, Executive ability, Organizational behavior and in some cases Personnel management demonstrates interest in the way that these entrepreneurs and leaders behave.

The challenges of measurement methods

According to the purpose on how to avoid measurement pit falls, when a concept is to be measured, the answer is above all that we can never avoid failure, unless we agree on the content of the concept. However, the overall presence of agreement does not exist of the concept of personality as stable and trustworthy. In contrary, i.a. Walter Mischel inclines to the view that the social factors matters most according to people's behavior. (Mischel, 1990)

In order to enhance the prosperity of the nation, the investigation must increase on how to measure entrepreneurial behavior and before that: the measurement on the personality behind the entrepreneurial desired behavior. That is off course even more interesting, if the entrepreneurship behavior is learnable.

The only way to make a qualified research is first to differentiate entrepreneurs and map their behavior as much as possible.(S. Sarasvathy, 2008; S. D. Sarasvathy, 2003) Then, the behavior need to be translated to the psychological mechanism that causes behavior, according to the definition in this paper. Third, the adequate personality has to be developed in the track of known personality tests strengths and weaknesses based on the full picture of the concept of personality. Then, and first then: The measurement.

Measurement Theory and Measurement Tools

To repeat, an individual's personality consist of a Structure with innate personal elements including for e.g. inheritable talent of math or music and a Process, where incidents affect the person over time and in different amount as e.g. culture. The structure part consists of psychological invariables, where personality traits occur. (Figure 1) As a result of the ongoing interest in the question on born or made according to the personality and the concept in general, personality theories had developed in different directions. One direction of personality theory building refers directly to Freud and Jung. When it comes to theory about personality trait in vocational life, the segregation has been about Cattell's 16PF and Five Factor Theory, but over time they have slide towards each other.

Raymond Cattell distinguishes between profound and superficial traits. Typical in-depth trait is the tendency to dominate or subjection and also being dependent on others or autonomous. (Pervin & John, 2001) According to Cattell, in-depth traits are the bricks of the personality, which correspond to the presented psychological invariable (Figure 1). 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, which is recognized 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 in between the 16 pairs two diametrically opposites.

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

Similar with Cattell and Costa & 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 classification model, which is hexagonal. The idea is that all people will place themselves somewhere in the middle according to the content amount of each of the six types. The hexagonal model is empirical very well-tested. (Holland, 1966; Holland, 1997) Theoretical, Holland's model and thoughts about the congruence between personality and vocational choice seems to be tenable. (Spokane, 1985) Holland's work speaks in favor of psychological invariable (see figure 1) that provides the individual to select certain jobs and educations. Moreover, the lasting of personality invariables must according to these results suggest that the invariable part of personality, called traits, must be stable to a certain point. It remains uncertain, whether Holland's Hexagonal Model (RIASEC-model) has been used outside vocational choice.

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. McCrae. The first version was published in 1978 and the revised version is a 240-item measure of the big five personality traits. The short and most common used version to measure the five personality traits has 60 items and is called The Big Five.

Pitfalls about the measurement tool: Personality test

The pitfall about Cattell's test is connected to the antagonistic test-design, because there is enhancing evidence that individual's personality accommodate the full palette of these personality factor-pairs. The entrepreneur has an ability to cover the full palette from white to black, and s/he uses daily "the gray tones in between white and black". For instance, entrepreneurs see things from two sides, for example their own side and their discussants side simultaneously, thereby they can change opinion in a second if

the arguments from the opponent are better. Kets de Vries describe this phenomenon as 'The tendency to split', which is connected to an either-or thinking (ideal-bad) plus to fear. (Kets de Vries, Manfred F. R., 2009). This ability is even better met by the term 'Paradox Elasticity', which is the ability to use the span in dichotomy to act adequate in a given situation. (Østergaard, 2003) The ability derives from biphasic personality trait that aloud an individual to escape from fear and opposite move towards food or another wanted object. (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 entrepreneur's must manage paradoxically and create change. (Smilor & Sexton, 1996)

The pitfall on 'The big Five' is the simple measurement, no matter 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 has to be more than 10 questions (items) pointing towards each trait or sub trait to ensure the in-depth validation. For instance, a question about outdoor activity is primarily answered with a current environmental related opinion, which not includes 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 that the first version contented both test score, self-score and interviewing. Similar, Dåderman and Basinsky recently describe the validity challenges form 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 is in line. Which personality traits should be measured to picture the entrepreneur valid and reliable?

Andreas Rauch and Michael Frese found a new pattern on personality traits matched to entrepreneurship in a meta-analysis in 2007 on entrepreneur's personality: 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 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 not had been studied frequently enough to include them into 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. Opposite, frequently used traits in the literature as internal

locus of control and risk taking were not included in one table (2) but in others (4) caused to a disagreement of relevance in the expert panel.

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 behavior (Aldrich, 1999) and Low & MacMillan's narrative reviews (Brockhaus & Horwitz, 1986; Gartner, 1989; Low & MacMillan, 1988), then Rauch & Frese found that business owners' personality traits were positively related to business creation and business success. The relationship is moderate, but about same size as the correlation between personality traits and leadership and also personality and performance in general. (Rauch & Frese, 2007, p. 369) Their discussion has continued during the years, and other has participated with new perspectives and suggestions such as Norris F. Krueger, Michael D. Reilly and Alan L. Carsrud's finding about intention as the best predictor of behavior (Krueger Jr, Reilly, & Carsrud, 2000; Valencia-deLara & Araque-Hontangas, 2012).

The ongoing discussion about personality trait as predictor for entrepreneurial behavior is down the line characterized 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, and of critical importance the distinction between the applied concepts and their interrelationship. From above, readers see the proactive personality as a trait in Rauch's and Frese's analysis, without knowing if it was measured as a main category or subcategory in the referred articles.

Pilar Valencia-deLara and Natividad Araque-Hontangas concur with the view demonstrated in figure 1, The Variable Wheel Model, and they argue for a distinction between personality traits and attitudes, due to the consideration of stable traits throughout life and preserved under any circumstances, where attitudes are found to change and adapt to circumstances. (McCline, Bhat, & Baj, 2000; Robinson, Stimpson, Huefner, & Hunt, 1991) They argue, that personality characteristics and entrepreneur's attitudes ought to be considered as complementary, not opposites, contributing to a more general predict behavior allowing normal and stable subject, both circumstantial and temporally. (Valencia-deLara & Araque-Hontangas, 2012, p. 352)

The statement is supported by the results (see figure 3) from an empirical personality survey that reveal knowledge on personality and personality trait to be aware about. An inductive research in the Østergaard Survey 2012² extracts the personality profile of 55 Entrepreneurs. The survey has no intention to stand significant and therefore, the survey is not in this paper compared to a similar population of non-entrepreneur's or another group of entrepreneurs. Instead, the survey result exemplifies crucial topics dealing with measurement of entrepreneurs, personality and personality traits.

² The Østergaard Survey was conducted on 55 entrepreneurs primarily in a Danish incubation park, Nupark in 2012. The personality test contains: 4 Basic Aptitudes, 12 Functional Categories as subscales with each 3 Personality Traits. Furthermore, the survey contains a Leadership Preference Test with 90 items and a comprehensive Questionnaire on e.g. role models, life-changing events, reasons of starting the enterprise etc. The personality test is standardized on 840 individuals and validated through more than 8.000 interviews. The reliability coefficient is + 0,9 over 1 year and + 0,7 over 5 years. With a total of 480 items, the personality test is comparable with MMPI and CPI. Additionally, 21 - 52 items leads to each personality trait to verify the statement. The items are on a Likert scale ranging from 1 (total disagree), to 4 (total agree), and avoiding the middle score. For further information, please contact the author by mail: aoe@business.aau.dk

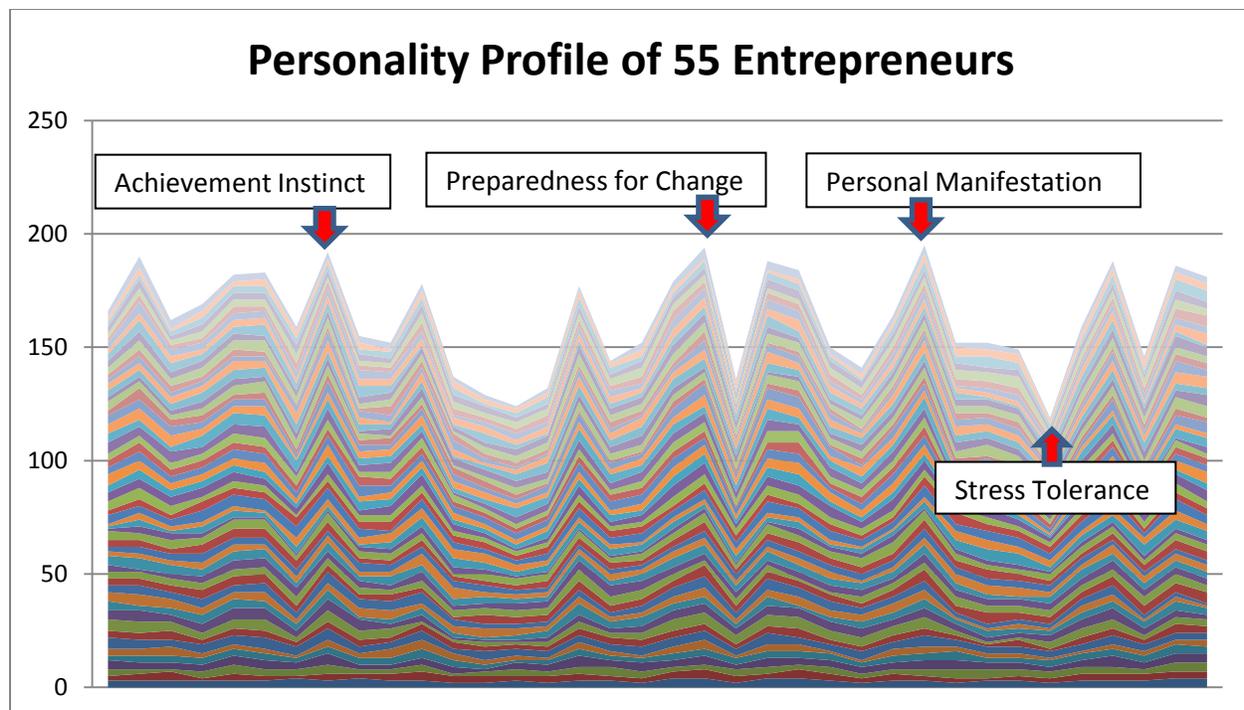


Figure 3. Personality Profile of 55 Entrepreneurs, The Østergaard Survey 2012

The survey results suggest that the future research in the area of personality trait has attention towards the full picture of an Entrepreneur to reveal new knowledge on the psychological variables and invariables. The psychological variables and invariables differs one entrepreneur from another, and one kind of entrepreneur from another kind. Such an attention will guide a future differentiation between entrepreneurs to enlighten the separate characteristics of a haircutter and how they differ from a serial entrepreneur and from a family dynasty builder etc.

During the survey, some common personality characteristics appeared which is shown in figure 4. The six most overall dominating traits were: Personal Manifestation, Preparedness for Change, Achievement Instinct, Risk Willingness, Autonomy, and Vigour. Then, the six lowest score of personality traits and therefore with the weakest appearance in the entrepreneurs unconscious behavior was: Stress Tolerance, Social Maturity, Tolerance, Democratic Attitude, Experience of Well-being, and Adaption Capacity.

Figure 4 confirms 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) Furthermore, the table gives new holistic insight not only on subcategories as Personality traits, but also on Functional Categories and Basic Aptitudes. In addition, the table shows the lowest score, which directly gives an insight in the dark side of entrepreneurship personality.

Specifically, the lowest score in the ranking list and the related functional categories and basic aptitude gives interesting new knowledge for Entrepreneurial Growth Programs. Figure 3 points out what issues to be aware of in governmental aid programs as well as in Entrepreneurial Learning in High Schools and

Universities as well as in primary and secondary school classes. Even though team work is introduced many places and that social competences is basically in general education, it is necessary to combine training in social competences as co-operation with developmental behavior. Otherwise, it will neither affect negatively on the innovation potential as the primarily aptitude or the leadership potential and the potential of effectiveness as the secondly important aptitude.

Ranked Score	Personality Trait	Functional Category	Basic Aptitude
<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	Adaption Capacity	Interaction	Social Potential

Source: 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

Regardless, the entrepreneur often is 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 to not experience well-being, which affect their ability to collect enough resources of all kind to innovate and create growth. The functions are well illustrated in the table by the broadness of functional categories, which again demonstrates the palette of task and interests that entrepreneur’s must attend. For this reason, the stress level increase regarding the need of different types of talent and knowledge for solving everyday challenges, which makes the entrepreneur rather vulnerable. A mentor, who bears it all patiently, could be the answer on securing effectiveness in that matter.

The precondition of measurement

As previous 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, JoHari’s Window in 1970. With a closely examination of their matrix, measurement

with only self-score should be understood of only a fourth of the whole truth. In other words, to cover the full picture of an individual the unconsciousness must be included in the measurement. It is obvious to learn from Herman Rorschach's inkblot tests or include unconscious answers by implicate more than 10 well developed items for each trait in personality testing.

Furthermore, general and evidently precondition should be mandatory before measurement, which are outlined in figure 5.

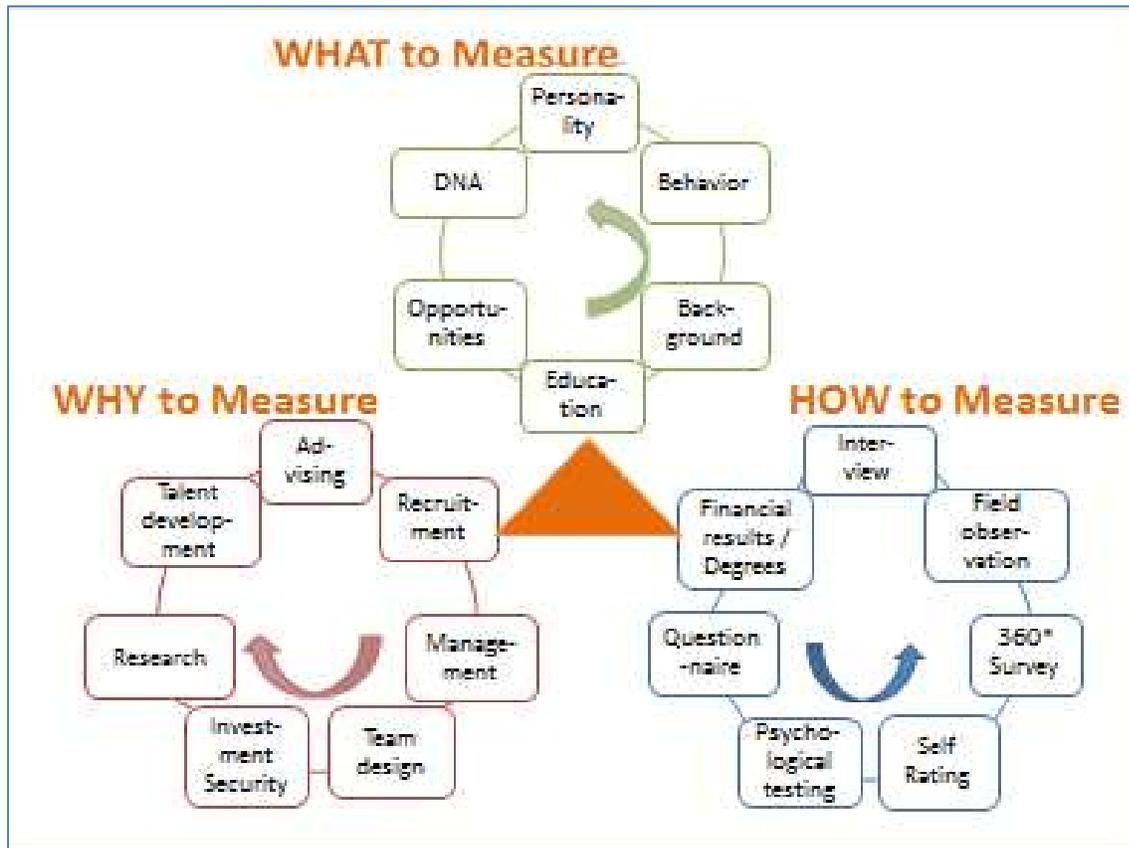


Figure 5. The precondition components of Measurement

When a measurement is designed, one has to reflect on 'Why' the measurement is necessary, needed or wanted. Recently, the tendency is articles based on what databases reveals of interesting data. In the example in figure 5, the reason to make a measurement is the purpose of recruitment of an employee. Subsequently, the consideration should be about 'What' to measure to find the right candidate. As examples, it could be the personality, the behavior, the background of the applicants, their education, the ones with beneficial opportunities or maybe just the next in the company pipeline, or it could be DNA to be sure of the stability of skills, health etc. In this example, the business custom is to use education. At last, the researcher has to decide 'How' to measure to secure validation. Measurement of talent development with only subjective self-score on behavior rarely leads to Olympic Games. Thus, the researcher needs to evaluate, what type of measurement is most workable for the purpose; interview, field observation, feedback survey, self-rating, psychological testing, questionnaire, financial results or

educational degrees. In this example, the selected decision is educational degrees. Finally, the implication of this choice must be seen through. What comes into play: the average of mark or grade, a specific course, a specific university or a university in a specific country or maybe the diversity or amount of educations?

The precondition components of measurement; explained by the questions Why to measure?, What to measure?, and How to measure? is mandatory in the future, if the development of measuring the entrepreneurial personality continues optimally.

Conclusion and further research

The challenges of the entrepreneurial personality and the challenges of the measurement methods are examined along with the solutions on how to solve the challenges. The article build up knowledge enlighten the most important challenges pivoting measurement of the entrepreneurial personality starting with the challenges of the entrepreneurial personality followed by the measurement.

First, the article provides a definition of personality, afterwards presenting a variable wheel model to differ between stable and changeable part of the personality, followed by a literature review on keywords revealing the diffusion of the field, and ending up suggesting future development of a new entrepreneurial typology. In addition, this article states that the entrepreneurial behavior is not reserved to economical and vocational related behavior. In contrary, the entrepreneurial behavior involves everything the entrepreneur thinks, copes with and might achieve.

In summary, whatever the position being for or against the concept of personality, the lesson to learn from the original use of the concept of personality in the literature review is that the great advantage appears, when suitable descriptions of individuals are used obtained from well-adapted measurement tool. Furthermore, our knowledge from ancient times about people being classified as different or with distinct pattern must interact with the current knowledge to apply for updated measurement methods.

Second, the article provides a summary of the most frequently used personality test and add the pitfalls, followed by insight from empirical research that a full picture of the entrepreneurial personality reveals more helpful knowledge than single traits research achieve, why it is suggested to increase future research in this track, an finally the precondition before measurement in general is surrounded and outlined in a model of precondition components of measurement.

Consequently, the optimal framework for measuring individuals covers the full picture on psychological variables and invariable plus the process, which mean that longitudinal studies is desirable. The latter is supported by scholars in general.

In summary, the advantage on a full personality test measurement is suggested by figure 3: Not only the interesting and identifying personality trait score is revealed, instead both the highest and the lowest score gives simultaneously an overview. 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 affect negatively to effectiveness. In addition, the survey result point 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 that 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 by a supporting environment with the right social relationships. As a consequence, governmental programs would benefit in further investigations on these issues to increase the success rate of entrepreneurs.

According to the headline on measuring the entrepreneurial part of the personality, this article suggest to measure the full personality profile until we know for sure, exactly which personality traits covers different types of entrepreneurs. By then, it might be sufficient to measure the adequate personality trait to conclude on personality traits. However, the full personality pattern have the possibility to remain, when its advantages is fully discovered. Moreover, that future research considers the original construction of a personality test to avoid subjective invalid answers as an indicator of entrepreneurial behavior.

Besides, a similar process is suggested about acknowledging the personality with all variable and invariable before measuring single or non-comparable details. Thus, besides stable personality traits in the psychological part of the personality, the psychological variable needs an increased attention. It is not motives or intension, but the behavior, thoughts and perception together that bring the personality to light. Exactly, as a child know when to behave well or not, according to an adult because the child know how to "read" behavior, thoughts and perception precisely.

Finally, the knowledge and future mandatory use of the precondition components in figure 5 and the same about valid measurement tool is suggested as a warranty of future usable achievements.

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