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<u>Thesis topic:</u>	Master Thesis on how self-efficacy and the characteristics of an entrepreneur affect the survival of a start- up firm
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Abstract

In the field of entrepreneurship, the personality of an entrepreneur is of major importance. This study will focus on the personality dimension of the Big Five (openness, conscientiousness, extraversion, agreeableness, and neuroticism), the dependent variable firm survival and on the possible mediator variable self-efficacy. The following question is researched: To what extent do the Big Five personality traits relate to self-efficacy and the survival of the firm?

This study assessed one respondent group who just started businesses in the Netherlands: the nascent entrepreneurs. The Big Five illustrates personality that consists of five relatively independent dimensions, which provide a meaningful taxonomy for studying individual differences, and has been widely applied in many domains, proving to be useful in the entrepreneurial context. The Big Five mini markers model was used to measure the dimensions of the Big Five. The self-efficacy scale was used to measure self-efficacy. Linear and logistic regressions were used to test the relationships between personality, self-efficacy, and firm survival. Theory indicates that a growing number of people want to start businesses, but many company cancellations were registered. Therefore, a key factor for small starting companies to succeed is looking at how the founder's personality influences the survival of the firm. A sample of 155 starting entrepreneurs was collected by Venture Lab; all the participants resided in the Netherlands.

This paper provides evidence of a positive relationship between openness, conscientiousness, extraversion, agreeableness and self-efficacy. On the other hand, no relationship was found between neuroticism and self-efficacy. The results of the tests of the Big Five with firm survival yielded no significant results and therefore no relationship between the Big Five and firm survival is supported. This also means a possible mediating effect of self-efficacy is not supported because there is no direct link between firm survival and personality. Furthermore, self-efficacy had a surprising negative relationship to firm survival, which means the expected positive relationship was also not supported by this paper.

This study's results show that many personality constructs affect self-efficacy and that personality does not affect firm survival, which is contrary to existing empirical work and, therefore, needs much more research.

Keywords: Entrepreneurs – Big Five – Self-efficacy – Firm Survival – Personality – Venture Lab

Preface

Enschede, November 2017

After a long period of research, with setbacks but with great satisfaction, the end product has finally taken shape. I started at the University of Twente in 2010 with the bachelor's degree: Business Administration. After obtaining my bachelor degree, I decided to begin the master's program in Business Administration. I was always fascinated with entrepreneurship hence I chose the Master track: Innovation and Entrepreneurship. With this fascination for Entrepreneurship, I decided to do my thesis on the effects of a starting entrepreneur's personality on firm survival. Encouraged by my supervisor, Dr. Harms, I went to work. What I personally found challenging was that each starting entrepreneur had a different trait set and, therefore, approached firm start-up differently. It was interesting how each entrepreneur self-assessed his/her traits as, in my opinion, it is natural that one gives oneself a positive score.

As a final note, I would like to thank a few people who supported me in the process of writing this thesis. First, I would like to thank my two supervisors: Dr. Harms and Dr. Zalewska-Kurek, who took the time to guide and support me in what, for me, was somewhat of a new experience. I had some difficulties in the starting process, though they always encouraged me to keep working and to set goals for myself to finish my work and finally earn my master's degree. Furthermore, a very special thanks to my wife Martina, who had the patience and support in this long process. Also, a very big thank you to my brothers, George and Marcel, and my friend, Jonathan Dag, who helped me when necessary. It is very much appreciated. Of course, I would like to thank my parents, who always supported me in my academic study and encouraged me to invest in my future. Last, I want to thank God who gave me the strength and perseverance in a very difficult period to finish my master's degree.

Michel Göksün,

Contents

Index of tables

Index of Figures

1. Introduction

1.1. Background & research question

In the Netherlands, an increasing number of people start companies so they can grow. They do so because they see an opportunity and the possibility to benefit from that opportunity. In 2015, the percentage of people that start a business based on these criteria has doubled from the year before (www.nrcq.nl).

A growing number of people want their business to grow after start-up. In 2016, a record breaking number of 192,673 starting entrepreneurs were registered in the Netherlands (KVK-bedrijvendynamiek, 2016). At the same time, 129,456 more company cancellations were registered, contrary to the last five years (KVK-bedrijvendynamiek, 2016). Thus, there are many companies that start but eventually fail to grow significantly enough to survive.

The root cause of this increase of new entrepreneurs can be found in the good perspective of starting a new business (Van Praag, 1996). To grow, the entrepreneur must take part in the entrepreneurial process to try to maximize and create value. Stam et al. (2012) defined the ambitious entrepreneur who wants to grow as someone who "identifies and exploits opportunities to create new products, services, processes, and organizations with high aspirations to achieve entrepreneurial success" (p. 40). The entrepreneur helps the company grow while staying alive.

However, many entrepreneurs need help in this process. In the Netherlands, at the University of Twente, an institution called Venture Lab guides entrepreneurs step-by-step in the process of growing by providing training and coaching. The courses vary from help with financing and technology to basic business development. The focus of Venture Lab is also on the entrepreneurs' traits and the influence that they can have on firm performance and firm survival. The results of that research must be analyzed and elaborated.

Self-efficacy concerns "people's beliefs in their capabilities to mobilize the motivation, cognitive resources, and course of action needed to exercise control over events in their lives" (Wood & Bandura, 1989, p3. 64). The influence of self-efficacy on firm survival is supported by many empirical studies (Stajkovic & Luthans, 1998; Trevelyan, 2011).

This study will help entrepreneurs understand how a start-up can survive. Regarding previous scientific work on the entrepreneurial role in firm survival, limited literature is available that might explain the combined influence of both self-efficacy and entrepreneurial characteristics on entrepreneurship. In this study, the link between entrepreneurs, firm survival, and self-efficacy was researched, with the possible influence of self-efficacy as a mediator. Thus, the following goal for this research was formulated: The goal of the study is to examine how self-efficacy of an entrepreneur affects the link between entrepreneurial characteristics and firm survival.

To formulate a good research question, the question must be efficient and must have steering capacity (Verschuren & Doorewaard, 2010). To obtain an answer to this research question, a hypothesis should be formulated. In this thesis, the following question will be researched:

To what extent do the Big Five personality traits relate to self-efficacy and the survival of the firm?

1.2. Introductory constructs

The influence of entrepreneurs' personal characteristics (traits) on firm survival has long been an object of research (Gartner, 1985; Shane & Venkataraman, 2000). Because of the important role of entrepreneurs in firm behavior and practices, it is likely that personal characteristics considerably explain why and how firms behave unequally (Rauch & Frese, 2007).

In this study, the theory of the Big Five was used (Goldberg, 1990). Growing evidence on personality measures suggests that a five-dimensional model is sufficient to explain personality (Judge et al., 1999). The dimensions of this five-factor model of personality (Big Five) are neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness (Goldberg, 1990). The "Big Five" dimensions have been tested around the world by various authors and the dimensionality seems to generalize in virtually all cultures (McCrae & Costa, 1997; Pulver, Alik, Pulkkinen & Hamalainen, 1995; Salgado, 1997). Furthermore, they seem to stay stable over time (Costa & McCrae, 1992).

Self-efficacy is important for entrepreneurs because "self-efficacy concerns people's beliefs in their capabilities to mobilize the motivation, cognitive resources, and course of action needed to exercise control over events in their lives" (Wood & Bandura, 1989, p. 364). Self-efficacy of a firm's founder plays an important role in the firm's performance. According to Maddox and Sherer (1982), self-efficacy consists of general self-efficacy and social self-efficacy. For an entrepreneur, self-efficacy is also important as it represents the entrepreneur's belief in his/her ability to achieve various entrepreneurial tasks. According to Trevelyan (2011), through self-efficacy, entrepreneurs establish challenging goals, invest in efforts regarding entrepreneurial tasks, recover rapidly from failure, and display persistence. Therefore, it is important to examine the influence of self-efficacy on firm survival and the role the Big Five plays in self-efficacy.

For an entrepreneur, ensuring the survival of his or her company is crucial. A firm's performance is key for the firm's survival. The performance is mostly measured by three indicators: Growth, profitability, and firm survival (Baron, 2007; Duratko et al., 2001; Watson, 2004; Zhao et al., 2010).

Because of the nature of the incubator performed by Venture Lab, the focus of this study is on a firm's survival to assess firm performance. To assess growth and profitability, considerably more information taken over a longer period is needed, and therefore, growth and profitability will remain out of scope.

1.3. Managerial relevance

This research is relevant for entrepreneurs as successful entrepreneurs appear to differ in personality from less successful entrepreneurs (Schmitt-Rodermund, 2004). The success of business founders originates from entrepreneurial activities and characteristics. Many researchers have found a link between personality and firm survival; the evidence is strong (Schmitt-Rodermund, 2004). This study will add new insights to the existing empirical work.

In this research, new insights into the nature of characteristics (personality) an entrepreneur should possess to have the tools necessary to successfully start up a business and survive are given. During this process, the role of self-efficacy is also reviewed. According to previous empirical work, an entrepreneur's self-efficacy also plays a role in that entrepreneur's decision-making process. These study results can be useful for starting entrepreneurs by understanding where to focus when starting a company.

1.4. Research gap

Regarding existing literature on personality, self-efficacy, and firm survival, a volume of empirical work is available. Much empirical research has been conducted with samples of university students or existing entrepreneurs (Begley & Tan, 2001; De Noble et al., 1999; Wilson et al., 2007).

This research was conducted with real nascent entrepreneurs that took part in Venture Lab. Independent variables (personality traits), a dependent variable (survival), and a possible mediating variable (self-efficacy) were introduced. This model was chosen because self-efficacy plays an important role in both personality and firm survival research (Ng, Ang, & Chan, 2008). A mediator effect occurs when the mediating variable reduces the effect of the strength of the relationship between predictor and outcome (Field, 2009). There is a positive and significant effect between personality and firm survival, yet researchers do not know how this effect emerges. There are mediating factors, and self-efficacy could be one of them because research on personality (Barrick et al., 2005; Mccrae & Costa. 1997) and motivation (Kanfer, 1990) has stated that the effects of personality on work behavior are mediated through proximal motivational states. According to social cognitive theory (Bandura, 1997), self-efficacy is the most powerful self-regulatory mechanism that can affect behavior. Meta-analysis proved that self-efficacy beliefs are crucial for the prediction of performance (Stajkovic & Luthans, 1998). To survive, one also has to perform. Thus, self-efficacy also effects firm survival. In combination with personality research that stresses the importance of motivational processes and the fact that self-efficacy is a central motivational construct for prediction of performance (Ng, Ang & Chan, 2008), the suspicion of the presence of a possible mediation effect is well-founded. In existing literature, this combination has not yet been researched. In most research performed, the constructs were handled separately.

1.5. Fill in the managerial and research gap

To fill in the academic and managerial gap mentioned in the previous sections, a research objective for this study was formulated:

> This thesis intends to study the effect of personality (i.e., the Big Five) of nascent entrepreneurs in the Netherlands on firm survival and to examine the effect of self-efficacy in this process to help starting entrepreneurs understand what is necessary in personality to successfully start up a business.

A central research question that captures the essence of the research objective and can fill in the academic and managerial gap was formulated. That research question is as follows:

To what extent do the Big Five personality traits relate to self-efficacy and the survival of the firm?

2. Theoretical framework

This chapter will focus on theories that will explain the central research question. These theories will be structured, and links will be derived using hypotheses. A distinction between direct and indirect effects was considered during this process. According to Pearl (2001,) "the direct effect of one event on another can be defined and measured by holding all intermediate variables constant between the two" (p. 411). With an indirect effect, the intermediate variables are not held constant.

2.1. Direct effect: Personality

2.1.1. History of entrepreneurial research

In the late 1600s, Cantillon was the first to write about entrepreneurs. He named three classes of economic agents: employees, landowners, and entrepreneurs. His definition of entrepreneur was someone who exercises business engagements in the face of uncertainty (Hebert & Link, 1989).

In the late 1900s, Menger considered entrepreneurs to be people who combine production factors, and Marshall (1961) regarded entrepreneurs as pioneers of new paths. After the post-war period, entrepreneurship disappeared from economic theory, but since the 1980s, the interest in entrepreneurship revived (Wennekers & Thurik, 1999). There was an expansion of small firms in many industries because the flexibility of small firms proved to give competitive advantages, which generated an increased focus on entrepreneurship. Also, the employment problem in West Europe contributed to the growth of entrepreneurship because many politicians and economists believed small and new firms would contribute to new possibilities for growth, creating jobs and innovation (Wennekers & Thurik, 1999). This trend increased the importance of the term entrepreneur, playing a vital role in entrepreneurship.

Entrepreneurial theories are divided into three mayor intellectual traditions (Wennekers & Thurik, 1999): (neo-)classical tradition (Marshall, Knight, & Schultz, year), Austrian tradition (Menger, von Mises, & Kirzner), and the German tradition (Thunen, Schumpeter, & Baumol).

- The (neo-)classical tradition is focused on entrepreneurs bringing markets to equilibrium through entrepreneurial activities.
- The Austrian market stresses the task of the entrepreneur to combine resources to fulfill currently unsatisfied needs or to improve market inefficiencies or deficiencies.
- In the German tradition, also called Schumpeterian tradition, the entrepreneur is a creator of creative destruction and instability (Wennekers & Thurik, 1999).

These theories give a broad perspective on the term entrepreneurship and on the intermediate variables that connect economic growth and entrepreneurship (Wennekers & Thurik, 1999).

2.1.2. History of the Big Five

This study only focuses on the general traits of the entrepreneur. These general traits were researched using the Big Five of Goldberg (1990). Personality has been explained by various authors (Goldberg, 1971). Most of those studies were focused on personality traits because of the need for a descriptive model, or taxonomy of traits at that time, which could be used as a guide with specific domains of

personality traits rather than having to research one of thousands of attributes that makes each individual different (John & Srivastava, 1999).

Klages (1926), Baumgarten (1933), and Allport and Odbert (1936) began with the extraction of all personality-relevant terms from the dictionary that were found important in people's daily interactions. Allport and Odbert (1936) collected all the personality-relevant terms from an English dictionary, which amounted to approximately 18,000 terms. These terms were divided into four categories:

- Personality traits (e.g., aggressive, fearful, and sociable).
- Temporary states, activities, and moods (e.g., elated, rejoicing, and afraid).
- Highly evaluative judgments of personal conduct and reputation (e.g., average, excellent, irritating, and worthy).
- Physical characteristics and talents, terms of doubtful relevance to personality

A major pioneer in the trait theories was Cattell (1943). He started by reducing the 18,000 terms to 4500 terms. With the help of semantic and empirical clustering procedures, he reduced those 4500 to a mere 35 variables. Using factor analysis, he identified 12 personality factors, which later became part of his 16 personality factors questionnaire (Cattell, Eber & Tatsuoka, 1970). Stimulated by Cattell's work, other researchers became more interested in trait research. A significant number of researchers were involved in the discovery and clarification of the Big Five dimensions. Fiske (1949) found much more simplified descriptions from 22 of Cattell's variables. Tupes and Christal (1961) reanalyzed results from eight different samples and found five relatively strong factors. These factors were replicated by other researchers, and eventually, Goldberg (1981) gave them the name the "Big Five" because "each dimension summarizes a large number of distinct more specific personality characteristics" (John & Srivastava, 1999, p. 105).

For the field of personnel psychology, the five-factor model has crucial implications. Barrick et al. (1991) stated, "the five-factor model illustrates that personality consists of five relatively independent dimensions which provide a meaningful taxonomy for studying individual differences" (p. 3).

The elements of the Big Five are as follows (Goldberg, 1982; Goldberg, 1990; John & Srivastava, 1999; Judge et al., 1999):

1) Extraversion or Surgency (energetic, talkative, assertive)
2) Agreeableness (trustful, good-natured, cooperative)
3) Conscientiousness (dependable, orderly, responsible)
4) Emotional Stability versus Neuroticism (not easily upset, calm, not neurotic)
5) Intellect or Openness (independent-minded, intellectual, imaginative)

The first dimension of the Big Five is called extraversion or surgency. Extraversion is a broad dimension. People who are extraverts are socially oriented but also ambitious and dominant (surgent), as well as active (assertive and adventuresome) (Judge et al., 1999). When scoring high on this dimension, there is a greater chance of taking on a leadership role and on having many close friends (Watson & Clark, 1997). Attributes frequently being linked to extraversion are talkativeness, activeness, socialness, assertiveness, and gregariousness (Barrick et al, 1991). Extraversion is expected to have a positive influence on career success.

The second dimension of the Big Five is commonly called agreeableness or likability. Judge et al. (1999) stated agreeable people are characterized by being likable (cheerful, gentle, good-natured) and cooperative (caring and trusting of others). Attributes associated with this dimension are soft-heartedness, forgiveness, good-naturedness, courteousness, flexibility, tolerance, and trustfulness (Barrick et al., 1991). Being agreeable or likable is not always linked to career success, as in some cases the possession of these traits might not be preferred (Judge et al., 1999).

The third dimension of the Big Five is called conscientiousness or conscience. The consensus on the traits this dimension entails are responsibility, structure, organization, carefulness, and thoroughness (Barrick et al., 1991). Conscientiousness is the construct most related to performance (Salgado, 1997) and is presented in three affiliated facets: orderliness (organized and structured), achievement orientation (persistent and hardworking), and dependability (careful and responsible). Thus, this dimension is related to order, persistence, an individual's degree of self-control, and a need for achievement (Judge et al., 1999). These constructs show it is not surprising that conscientiousness is a valid predictor of work-related success and job performance.

The fourth dimension of the Big Five is called emotional stability versus neuroticism. Traits associated with this dimension are depression, anger, embarrassment, anxious, insecurity, and worry (Barrick et al, 1991). Neuroticism appears in almost every personality measurement and generally refers to something negative. Judge et al. (1999) called it "a lack of positive psychological adjustment and emotional stability" (p. 624). People who have a high score on neuroticism are more likely to experience problems; these problems can consist of negative moods and sometimes physical symptoms (Judge et al., 1999). Thus, neuroticism is expected to have a negative influence on career success.

The fifth dimension of the Big Five is intellect or openness. Unconventionality (autonomous, nonconforming, and imaginative) and intelligence (intellectual and philosophical) are main characteristics of openness (Judge et al., 1999). Traits associated with this dimension are originality, imagination, broad-mindedness, intelligence, cultures, artistic sensitivity, and curiosity (Barrick et al., 1991). Being open might not always be linked to career success because, in some cases, these traits might not be preferred (Judge et al., 1999). For example, an open-minded person might not react well in conventional occupations or might be prone to job hopping.

In several studies, the link between traits and corporate success (financial success/venture growth) has been made (Baron & Markman, 1999; Goldberg, 1990; Judge et al., 1999; Lock & Baum, 2004). According to entrepreneurs and new venture financers, entrepreneurs' personal characteristics play a dominant role in success (Baum & Locke, 2004). In past studies, this significant link has not always provided cohesive results. This link will be discussed in the next section with the help of existing meta-analysis.

2.1.3. Link between Big five and firm survival

The link between the Big Five and firm survival is important because previous research (e.g., Barrick & Mount, 1991; Zhoa et al., 2006) has indicated that most of the components of the Big Five are related to employee job performance. Putting the focus on entrepreneurial firm survival, it is expected that people who score highly on personality traits that have a link with behavior related to the entrepreneurial role are more likely to be successful entrepreneurs (Zhao et al., 2006), mainly because of their greater willingness to engage in types of needed behaviors, their fewer problems regarding effort or strain, and their greater motivation, satisfaction, and commitment in those situations. The way an entrepreneur will complete his/her tasks will probably have a considerable influence on firm performance because entrepreneurs play a massive strategic role in the success of a starting firm (Markman & Baron, 2003; Rauch & Frese, 2007; Zhoa et al., 2006).

The link between conscientiousness and survival is important because conscientiousness is expected to have a positive association with entrepreneurial firm performance. Conscientiousness is regarded as the most important variable to many scholars (Costa & McCrae, 1992; Gellatly, 1996; Zhoa et al., 2006) and is seen as the steadiest personality predictor of job performance in many jobs and occupations (Barrick & Mount, 1991; Zhoa et al., 2006). Being conscientious helps entrepreneurs build sustainable relationships with suppliers, investors, and many other stakeholders (Cantner et al., 2011). An entrepreneur with high conscientiousness follows the norms and rules and is more organized, which increases the chance of survival (Kaczmarek & Kaczmarek-Kurczak, 2016). Being more organized leads to efficiency and effectiveness (Ciavarella et al., 2004). A highly conscientiousness entrepreneur will have a better chance of a successful start-up (Schmitt-Rodermund, 2004). Caliendo et al., (2011) stressed the importance of achievement orientation in being successful. If an entrepreneur possesses that quality, he/she will be motivated to look for new and better solutions than those already existing. Conscientiousness is found to be positively related to long-term firm survival (Ciavarella et al., 2004). Therefore, the following hypothesis was formulated:

> H1a. Entrepreneurs who are conscientious will have a positive effect on firm survival.

Openness to experience is a critical factor in entrepreneurship because of the role opportunity recognition plays in a firm's start. Creativity, imagination, and openness to new ideas are major factors in that process (Ciavarella et al., 2004; Morrison, 1997; Zhoa et al., 2006). Although openness is not related to job performance in all occupations, it is important for situations where learning is required, such as workplace training or school (Barrack & Mount, 1991; Zhoa et al., 2006). A successful entrepreneur should be able to keep up with market trends and changing tastes, new technologies, and competitor behavior. This requires constant information monitoring and the willingness to keep learning (Zhoa et al., 2006). An open entrepreneur has more chance of survival in a start-up than someone who is not open (Schmitt-Rodermund, 2004). Most empirical papers found a positive relationship between openness and firm survival; therefore, the following hypothesis was formulated:

> H1b. Entrepreneurs who are open will have a positive effect on firm survival.

The link between neuroticism and survival is important because, according to meta-analytical results (Barrick, Mount & Judge, 2001; Zhoa et al., 2006), emotional stability is positively related to firm survival. Other meta-analytical results show that emotional stability is positively related to

effectiveness and leadership emergence (Judge et al., 2002). An entrepreneur who scores high on emotional stability is more likely to deal with high stress and problems by using positive thinking and direct action (Costa & McCrae, 1992; Zhoa et al., 2006). The entrepreneur is better equipped to cope with stress because she/he behaves in calm and confidence and, therefore, can focus on the task at hand, thus performing better in the role of entrepreneur (Zhoa et al., 2006). Neuroticism is the opposite of emotional stability (Barrick, Mount, & Judge, 2001; Zhoa et al., 2006). Entrepreneurs who score high on neuroticism will have less chance of a successful start-up than people who do not score high (Schmitt-Rodermund, 2004). Most of the existing literature indicates a negative relationship between firm survival and neuroticism. Therefore, the following hypothesis was formulated:

H1c. Entrepreneurs who are neurotic will have a negative effect on firm survival.

The link between extraversion and survival is important because entrepreneurs that score high on extraversion have traits that are positive for firm survival (energetic, assertive, active, and dominant) (Zhoa et al., 2006). Therefore, the expectation is that the relationship between extraversion and firm survival will be positive. Schmitt-Rodermund (2004) found high extraversion in starting entrepreneurs can lead to a successful start-up and thus gives the start-up more chance to survive. A high volume of entrepreneurs' tasks t involve social interaction, including negotiating deals with suppliers and customers, communicating enthusiasm and vision, establishing relationships among employees and partners, and building networks with outside backers and other constituents (Markman & Baron, 2003; Zhoa et al., 2006). The following hypothesis was formulated:

H1d. Entrepreneurs who are extraverted will have a positive effect on firm survival.

In contrast to the other dimensions, agreeableness is expected to be negatively related to firm survival (Zhoa et al., 2006). There are theorists who believe having a trusted relationship with venture capitalists or between team members who helped found the company is crucial to entrepreneurial success (Cable & Shane, 1997; Eisenhardt & Schoonhoven, 1990). However, someone being too trustful might lead to easy exploitation and gullibility. Furthermore, a starting entrepreneur usually does not have a long-term relationship with business partners or investors, so such a strong and trusting relationship could not be reasonably developed. Driving a hard bargain, looking at one's own interests, and even manipulating others may be more important than being agreeable for growth and firm survival (Zhao & Seibert, 2006). Considering this, it is expected that people who are less agreeable are most likely to be more successful as entrepreneurs (Schmitt-Rodermund, 2004; Zhoa et al., 2006). To test this, the last hypothesis of the Big Five and firm survival is as follows:

H1e. Entrepreneurs who are agreeable will have a negative effect on firm survival.

A conceptual model of the relationship between traits and firm survival described in the five hypotheses is provided in Figure 1.
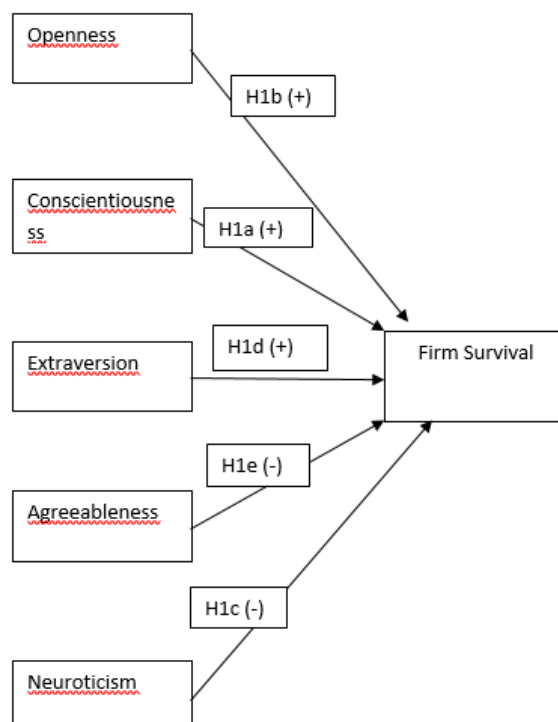
Figure 1. Conceptual model of hypotheses' description of relationship between Big Five and firm survival

2.2. Indirect effect: Self-efficacy

A person must have two resources to complete any task successfully (Bandura, 1982, 1986, 1997): the requisite skill (knowledge) and self-efficacy (Wood & Bandura, 1989). In many cases, many possess the requisite level of knowledge to perform a certain task, but few achieve an optimum level. It is presumed this is reflected mostly by a variance in self-efficacy. Human functioning is impacted by self-efficacy through four psychological processes: Affective, cognitive, selection, and motivation (Bandura, 1994).

"Perceived self-efficacy concerns people's beliefs in their capabilities to mobilize the motivation, cognitive resources, and course of action needed to exercise control over events in their lives" (Wood & Bandura, 1989, p. 364). Self-efficacy is an assessment of an individual's capabilities in three crucial and complex areas: Action, motivation, and resources. Self-efficacy is not a generalized trait (Bandura, 1982, 1986); it is the belief a person has in his/her competence to complete a specific assignment. To have only skill or self-efficacy is not enough to successfully perform a task. One needs both self-efficacy and skill (Bandura, 1982; Bandura, 1986; Wood & Bandura, 1989). At one point during the process, self-efficacy determines the initial decision to complete an assignment, the load of effort to be spend, and the level of persistence (Gardner & Pierce, 1998).

Self-efficacy consists of three dimensions: Magnitude, strength, and generality (Gist, 1987). The first dimension is magnitude. Magnitude represents the level of task difficulty. The second dimension is strength. Strength represents whether the belief concerning magnitude is weak or strong. The last dimension is generality. Generality represents the degree to which the expectation is generalized

across situations. Also, it is assumed self-efficacy can change over time with new experiences and information; it is a dynamic process (Gardner & Pierce, 1998; Gist & Mitchell, 1992).

Human functioning is impacted by self-efficacy through four mayor psychological processes (Bandura, 1994). These are the affective, cognitive, selection, and motivational processes. These processes will be described below pertaining to their link with self-efficacy.

The relationship between affective processes and self-efficacy is as follows: Affective processes regulate emotional states and the elicitation of physiological or emotional reactions. The following example was given by Bandura (1994): If someone has a great sense of self-regulatory efficacy he/she tends to be more successful in lessening health weakening habits and embodying health-promoting habits in his/her lifestyle (Bandura, 1994).

The relationship between cognitive processes and self-efficacy is as follows: It influences the anticipatory scenarios that humans construct and rehearse (Bandura, 1994). Thus, people with high self-efficacy beliefs stay positive and try to anticipate successful scenarios, while people with low self-efficacy have negative beliefs and anticipate failure. In other words, self-efficacy influences analytic thinking (Bandura, 1994).

The relationship between selection processes and self-efficacy is as follows: People can make their own choices. A person can choose in which activities and environments he/she wants to participate (Bandura, 1994). A person tries to avoid situations he/she thinks are not within his/her capabilities, but easily accepts challenges that he/she thinks is within his/her capabilities. Therefore, a person with high self-efficacy will engage in more challenging activities (Bandura, 1997).

The relationship between motivation processes and self-efficacy is as follows: Self-efficacy establishes perseverance, resilience to failure, and goal level (Bandura, 1994). People with a high level of self-efficacy persevere in hard circumstances and fight when they are on the verge of failure. This in contrary to people with low self-efficacy, who tend to give up more easily and, in the future, avoid these situations (Bandura, 1997; Weiner, 1985). The difference in failure perception is that people with high self-efficacy look at failure as a lack of effort, while people with low self-efficacy see it as a lack of ability (Bandura, 1997; Weiner, 1985). Someone with a high level of self-efficacy normally sets a higher goal level then someone with a low level of self-efficacy, plus that person aims to put more effort into situations (Bandura, 1997; Weiner, 1985).

2.2.1. Influence of self-efficacy on firm survival
A firm founder's self-efficacy plays an important role in the survival of the firm. For instance, Cole and Hopkins (1995) found a strong significant link between individual self-efficacy and performance. Many researchers found self-efficacy correlates with performance (Bandura, 1991; Gibson, 2001; Malone, 2001; Prussia, Anderson & Manz, 1998; Renn & Fedor, 2001; Stajkovic & Luthans, 1998). Stajkovic and Luthans (1998) said self-efficacy causes a 28% increase in performance and, therefore, creates a greater chance of survival (Gimeno et al., 1997).

Also, a person who has a managerial or leadership role must have an active interest in the self-efficacy of the person that works under his/her rule. These motivational concepts, which can be controlled by a leader, are affiliated with self-efficacy: feedback, Pygmalion Effect (to have a positive expectation of others), and goal setting (Gist, 1987). Regarding the role of management in the process of promoting

staff self-efficacy, it is important to create an environment and culture that boosts self-confidence and revolves around working in a team (Pearlmutter, 1998). In Luthans and Peterson's (2002) study, the role of the managers' self- efficacy is linked as a partial mediator of rated manager effectiveness and employee engagement. At a higher level in the organization, leadership climate affects self-efficacy and enhances role clarity (Chen & Bliese, 2002).

2.2.2. Self-efficacy and the Big Five

One of the components of extraversion is high-energy (Goldberg, 1993). People high in extraversion will score higher in self-efficacy than people low in extraversion (Hartman & Betz, 2007; Thoms, Moore, & Scott, 1996). Judge and Ilies (2002) support that belief and state that people who score high on extraversion will have a higher sense of self-efficacy than people who score low on extraversion. Extraversion increases positive reactions from others, which can lead to higher self-efficacy (Judge & Ilies, 2002). Thus, extraversion is expected to positively correlate with self-efficacy (Hartman & Betz, 2007; Thoms, Moore, & Scott, 1996). Therefore, the following hypothesis was formulated:

H2a. Entrepreneurs who are extraverts will have a positive effect on self-efficacy.

Motivation is stressed as important in the conscientiousness literature (Barrick et al., 2001). Motivation plays a highly important part in Bandura's self-efficacy theory (1997). Thus, these two constructs are connected because of their positive similarities in both theories. Conscientiousness increases effort and task engagement, giving a person greater self-efficacy beliefs (Brown et al., 2011). Conscientiousness is expected to positively correlate with self-efficacy (Hartman & Betz, 2007; Thoms, Moore, & Scott, 1996). Judge and Ilies (2002) also expected people who are conscientious (achievement-oriented, dependable, orderly, and deliberate) would score high on self-efficacy. Therefore, the following hypothesis was formulated:

H2b: Entrepreneurs who are conscientious will have a positive effect on self-efficacy.

People with low self-esteem are likely to have low self-efficacy in many of their tasks (Gist & Mitchell, 1992). People who score high on neuroticism have low self-esteem when performing a task required in their field of expertise. Neuroticism thickens anxiety, which can suppress or reduce self-efficacy (Schmitt, 2008). Judge and Ilies (2002) also found a negative influence of neuroticism on self-efficacy. Thus, neuroticism is expected to negatively correlate with self-efficacy (Thoms, Moore and Scott, 1996; Hartman & Betz, 2007). Therefore, the following hypothesis was formulated:

H2c. Entrepreneurs who are neurotic will have a negative effect on self-efficacy

Agreeable people, people who have tendencies to be kind, warm, trustworthy, gentle, and trusting, are expected to score high on self-efficacy (Thoms, Moore, & Scott, 1996). Agreeableness eases entry into activities that are new, skills which can lead to enlarging self-efficacy (Caprara et al., 2009). Judge and Ilies (2002) supported these findings and found a positive correlation between agreeableness and self-efficacy. Therefore, the following hypothesis was formulated:

H2d: Entrepreneurs who are agreeable will have a positive effect on self-efficacy.

Individuals who can deal with insecurity and are imaginative and open to new experiences will score high on self-efficacy (Thoms, Moore, & Scott., 1996). Openness shifts perceptions of demand into challenges that must be dealt with, enlarging self-efficacy and task engagement (Sanchez-Cordona et al., 2012). A positive correlation was also found between openness and self-efficacy (Judge & Ilies, 2002). Thus, openness is expected to positively correlate with self-efficacy (Thoms, Moore, & Scott, 1996; Hartman & Betz, 2007). Therefore, the following hypothesis was formulated:

H2e: Entrepreneurs who are open will have a positive effect on self-efficacy.

A conceptual model of the relationship between the traits and self-efficacy described in the five hypotheses is provided in Figure 2.
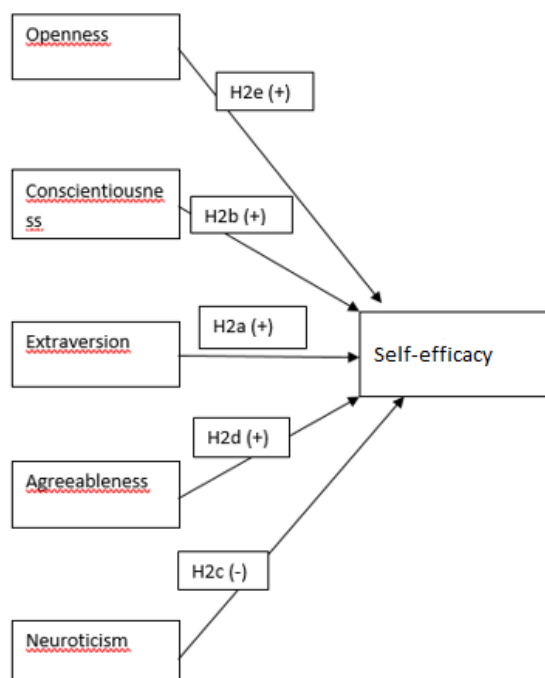
Figure 2. Conceptual model of the hypotheses' description of the relationship between Big Five and self-efficacy

2.3. Indirect effect: Firm survival (yes/no)

For an entrepreneur, growth and survival are of mayor importance for the company. In order to survive, the entrepreneur's firm performance has to be sufficient, so the company has a greater chance of survival (Gimeno et al., 1997). Firm performance is mostly defined by three indicators: Growth, profitability, and firm survival (Baron & Shane, 2007; Kuratko et al., 2001; Watson, 2003; Zhao et al., 2010). Some entrepreneurial activities can have more chance of success than others. Selling, planning, networking, and finding resources are important factors that can result in a successful start-up

(Gatewood et al., 1995). Due to the nature of the incubator performed on entrepreneurs by Venture Lab, I will only focus on firm survival to assess firm performance.

A company's failure will involve significant financial and human costs. Thus, researchers have long been interested in factors associated with firm survival. One of these factors is self-efficacy: "Self-efficacy concerns people's beliefs in their capabilities to mobilize the motivation, cognitive resources, and course of action needed to exercise control over events in their lives" (Wood & Bandura, 1989, p. 364). A firm founder's self-efficacy plays an important role in the performance of the firm. For instance, Hopkins (1995) found a strong significant link between individual self-efficacy and performance. The majority of empirical work concludes self-efficacy correlates with performance (Bandura, 1991; Gibson, 2001; Malone, 2001; Prussia, Anderson, & Manz, 1998; Renn & Fedor, 2001; Stajkovic & Luthans, 1998). Stajkovic and Luthans (1998) said self-efficacy causes a 28% increase in economic performance.

Also, a person with a managerial or leadership role must have an active interest in the self-efficacy of the person that works under his/her rule. According to Gist (1987), these motivational concepts, which can be controlled by a leader, are affiliated with self-efficacy: Feedback, Pygmalion Effect (to have a positive expectation of others), and goal setting. Regarding the role of management in the process of promoting staff self-efficacy, it is important to create an environment and culture that boosts self-confidence and revolves around working in a team (Pearlmutter, 1998). In Luthans & Peterson's (2002) study, the role of the managers' self-efficacy is linked as a partial mediator of rated manager effectiveness and employee engagement. At a higher level in the organization, leadership climate affects self-efficacy and enhances role clarity (Chen & Bliese, 2002).

Because of the importance of self-efficacy in scientific work on firm survival, the following hypothesis was tested:

> Hypothesis 3a: Entrepreneurs who score high on self-efficacy will have a positive effect on firm survival.

A conceptual model is depicted in Figure 3.
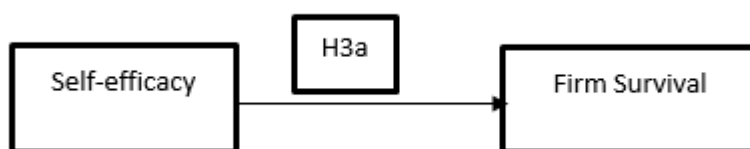
Figure 3. Conceptual model of hypothesis between self-efficacy and firm survival

In the direct effect between personality and firm survival, there is a possible mediation effect that might affect the relationship. A mediator effect occurs when the mediating variable reduces the effect of the strength of the relationship between predictor and outcome (Field, 2009). Research on personality (Barrick et al., 2005; Mccrae & Costa. 1997) and motivation (Kanfer, 1990) has stated that

the effects of personality on work behavior is mediated through proximal motivational states. According to social cognitive theory (Bandura, 1997), self-efficacy is the most powerful self-regulatory mechanism that can affect behavior. Meta-analysis proved that self-efficacy beliefs are crucial for the prediction of performance (Stajkovic & Luthans, 1998). To survive, one also has to perform, thus self-efficacy also effects firm survival. In combination with personality research that stresses the importance of motivational processes and the fact that self-efficacy is a central motivational construct for prediction of performance (Ng, Ang, & Chan, 2008), the following hypothesis was formulated:

> Hypothesis 4a: Self-efficacy mediates the relationships between conscientiousness (H1a), openness (H1b), neuroticism (H1c), extraversion (H1d), and agreeableness (H1e) and firm survival.

To gain a more visual understanding of the study and the link between entrepreneurs, self-efficacy, and firm survival, the following model was drafted (Figure 4):
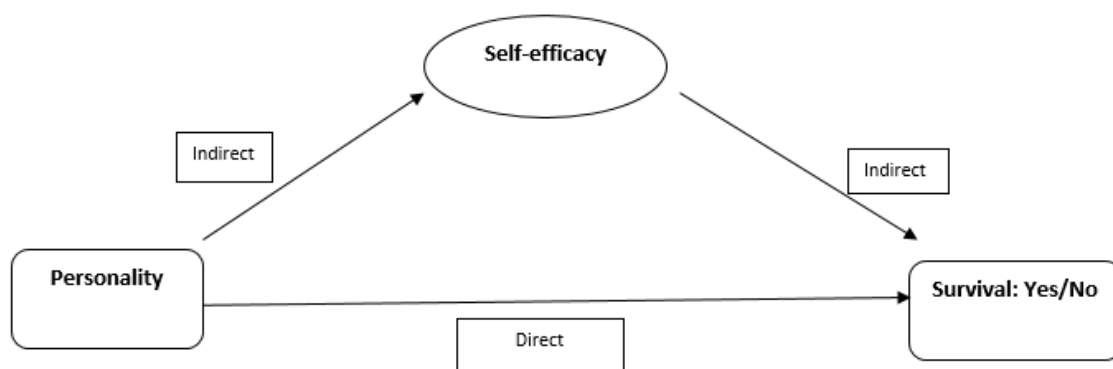
Figure 4. Model of theory

3. Methodology

3.1. Sample & Procedures

3.1.1. Sample

Entrepreneurs voluntarily applied to Venture Lab to obtain help and guidance in growing their startup ventures through training and coaching. Also, specific information was gathered about personality, self-efficacy, and firm development. This study aimed to examine the participants' significant characteristics and their influence on success. Data collecting was performed with the help of group administered paper-pencil questionnaires that were completed by the study's participants. These participants consisted of 210 people, who all completed the questionnaires.

Research data from the Venture Lab project was used during analysis. In this study, questionnaires were administered to starting entrepreneurs who applied to the University of Twente project, called Venture Lab. This project was held during a four-month period, with Dutch respondents who mainly resided in the Netherlands. A quantitative research method was used for this study, based upon paper-pencil questionnaires, because of the availability of the participants in a personalized coaching and training program, who were therefore present. The data sampling was conducted based on interviews, curriculum vitae, and motivational letters of people who participated on a voluntary basis. Also, a profile questionnaire was used to learn about the participants. This yielded a total of 210 participants. From these 210 participants, 155 completed the full questionnaire. From the 155 participants, 109 survived and 46 did not survive. Participants of Venture Lab consist of different ages, genders, and races, but specific data is not given in the sample. Therefore, the sample is not necessarily a good indicator of the total population of Dutch start-ups. Thus, the constructs may be biased due to the selection method. This is discussed further in the limitations section.

3.1.2. Procedures

The participants voluntarily applied to Venture Lab and participant selection was based on their interviews, curriculum vitae, and their motivational letter. The selected group of participants were part of the Venture Lab kick-off. After checking the reliability and validity of the questionnaires, the questionnaires were ready to be distributed to each participant. First, the participants were informed about Venture Lab and what it entailed. Then, the profile questionnaires were distributed to gain a clearer picture of the entrepreneurs' personalities and included introductory remarks about the reasons behind the questionnaire. These remarks can be found in Appendix C. All 210 entrepreneurs received the questionnaire and were encouraged to complete it as honestly as possible. There were no right or wrong answers, and it was stated that answers would be strictly confidential. Because participants willingly applied to the Venture Lab program, almost all participants completed the questionnaires.

All descriptive statistics are depicted in tables. Table 1 shows the descriptive statistics for personality (Big Five), Table 2 shows the descriptive statistics for self-efficacy, and Table 3 shows the descriptive statistics for Firm Survival.

Table 1. Descriptive statistics for personality

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Extraversion	155	2.00	5.00	3.5668	0.68511
Openness	155	2.63	5.00	3.7304	0.51093
Neuroticism	155	2.00	4.88	3.5199	0.56582
Conscientiousness	155	1.43	4.57	3.4263	0.57147
Agreeableness	155	2.63	5.00	4.0602	0.45944
Valid N (list wise)	155				

Table 2. Descriptive statistics for self-efficacy

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
Self-efficacy	155	2.59	4.82	3.8805	0.48916
Valid N (listwise)	155				

Table 3. Descriptive statistics for firm survival

Descriptive Statistics

	N	Minimum	Maximum	Sum	Mean	Std. Deviation
Survival of firm	155	0	1	109	0.70	0.458
Valid N (listwise)	155					

3.2. Operationalization

A measurement instrument is a term used to refer to a measurement device (test, questionnaire, survey, etc.). In this research, the measurement instrument Questionnaire was applied to test respondents' perceived ratio on the variables self-efficacy and personality. Standardized instruments were used. These instruments have been widely used in the field and are validated for a particular purpose. First, the validity, with the use of principal component analyses, was carefully tested. After testing, the validity and the reliability, using factor analyses, was tested.

3.2.1. Personality (Big Five)

To test the construct personality (independent), Thompson's (2007) Big Five mini markers, which consist of 40 personality markers, ranging from inaccurate (1) to accurate (5), and which are all part of

one of the Big Five characteristics (See Appendix D), were used. These markers should give a satisfying indication of a person's actual level of extraversion. This should be the same for the other four variables. Examples of mini markers of each variable are energetic (extraversion), artistic (openness), moody (emotional stability), systematic (conscientiousness), and cooperative (agreeableness). Also, reversed characteristics, like kind and unkind, can be perceived in the markers. Thus, the results will be interpreted correctly and can be checked for too many differences. The score of the reversed markers will be reversed back in the data set to avoid ambiguous results. It is a highly used and researched measurement instrument of the Big Five personality dimensions. In Appendix A. all the markers are stated and positioned in the correct Big Five marker category.

It is not advised to calculate the markers, their numbers, and the number of participants separately. Scores per participant on each dimension were summed up and divided by the number of markers belonging to them. This gives a mean score per dimension per participant. Each dimension was analyzed separately. Factor analyses and Cronbach's alpha were performed to test the validity and reliability of the model.

3.2.1.1. Extraversion

The first dimension of the Big Five is extraversion. In order to test the dimension, all 155 completed questionnaires were used. To test extraversion, eight mini markers (Thompson, 2007) on extraversion were examined using factor analysis.

This dimension consists of the traits associated with people who are socially oriented, as well as ambitious and dominant (surgent) and active (assertive and adventuresome) (Judge et al., 1999). To operationalize this dimension, items were taken together to form a scale.

I am…

Shy (R)	Energetic	Extraverted	Reserved (R)
Talkative	Quiet (R)	Outgoing	Untalkative (R)

* Note: (R) are items that are reversed

These items were assigned numbers from 1 (inaccurate) to 5 (accurate).

With the help of SPSS (Reliability Analysis), the Cronbach's Alpha was calculated: 0.838. This number measures the internal consistency of the eight items. In this case, it indicates it is acceptable to combine the eight items; the combined items are homogeneous and thus closely related as a group. Furthermore, a factor analysis was performed and the Bartlett's test of sphericity and the Kaiser-Meyer-Olkin Measure (KMO) were examined, which gave insight into the extent of correlation. Thus, I could determine whether there is sufficient correlation between the variables (items) (Hinton & Brownslow, 2004; Wijnen & Janssens, 2002). The Bartlett's test of sphericity gave a value of 0.000, which is less than the threshold of 0.05, indicating there is sufficient correlation between the variables (items). The Kaiser-Meyer-Olkin Measure (KMO-test) shows a value of 0.842, which is higher than the threshold 0.50, also indicating there is sufficient correlation between the variables (items) (Hinton & Brownslow, 2004; Wijnen & Janssens, 2002).

However, the factor analysis shows one component/dimension with a value great than one and a declaration of variance of 47.5%. All the communalities (the declaration of variance per item) are high enough (> 0.20) (Hinton & Brownslow, 2004; Wijnen & Janssens, 2002).

3.2.1.2. Openness

Openness consists of traits associated with people characterized by unconventionality (autonomous, nonconforming, and imaginative) and intelligence (intellectual and philosophical) (Judge et al., 1999). To operationalize this dimension, eight items were taken together to form a scale.

I am…

Creative	Unimaginative (R)	Intelligent	Deep
Intellectual	Artistic	Philosophical	Uncreative (R)

* Note: (R) are items that are reversed

These items were assigned numbers from 1 (inaccurate) to 5 (accurate).

With the help of SPSS (Reliability Analysis), the Cronbach's alpha was calculated: 0.838. This number measures the internal consistency of the eight items. In this case, it indicates it is acceptable to combine the eight items; the combined items are homogeneous and thus closely related as a group. Furthermore, a factor analysis was performed and the Bartlett's test of sphericity and the Kaiser-Meyer-Olkin Measure (KMO) were considered, which gave insight into the extent of correlation; thus, I could determine whether there is sufficient correlation between the variables (items) (Hinton & Brownslow,2004; Wijnen & Janssens, 2002). The Bartlett's test of sphericity gave a value of 0.000, which is less than the threshold of 0.05, indicating that there is sufficient correlation between the variables (items). The Kaiser-Meyer-Olkin Measure (KMO-test) shows a value of 0.688, which is higher than 0.50, also indicating there is sufficient correlation between the variables (items) (Hinton & Brownslow, 2004; Wijnen & Janssens, 2002).

However, the factor analysis shows one component/dimension with a value great than one and a declaration of variance of 57.1%. Also, all the communalities (the declaration of variance per item) are high enough (> 0.20) (Hinton & Brownslow, 2004; Wijnen & Janssens, 2002).

3.2.1.3. Conscientiousness

This dimension consists of the traits associated with being responsible, structured, organized, careful, and thorough (Barrick et al., 1991). To operationalize this dimension, eight items were taken together to form a scale.

I am…

Efficient	Careless	Neat	Systematic
Disorganized (R)	Untidy (R)	Inefficient (R)	Organized

* Note: (R) are items that are reversed

These items were assigned with numbers from 1 (inaccurate) to 5 (accurate).

With the help of SPSS (Reliability Analysis), the Cronbach's Alpha was calculated: 0.838. This number measures the internal consistency of the eight items. In this case, it indicates it is acceptable to combine the eight items; the combined items are homogeneous and thus closely related as a group. Furthermore, a factor analysis was performed, and the Bartlett's test of sphericity and the Kaiser-Meyer-Olkin Measure (KMO) were considered, which gave insight into the extent of correlation. Thus, I could determine whether there is sufficient correlation between the variables (items) (Hinton & Brownslow, 2004; Wijnen & Janssens, 2002). The Bartlett's test of sphericity gave a value of 0.000, which is less than the threshold 0.05, indicating there is sufficient correlation between the variables (items). The Kaiser-Meyer-Olkin Measure (KMO-test) gave a value of 0.831, which is higher than 0.50, also indicating there is a sufficient amount of correlation between the variables (items) (Hinton & Brownslow, 2004; Wijnen & Janssens, 2002).

However, the factor analysis shows one component/dimension with a value greater than one and a declaration of variance of 65.8%. Also, all the communalities (the declaration of variance per item) are high enough (> 0.20) (Hinton & Brownslow, 2004; Wijnen & Janssens, 2002).

3.2.1.4. Agreeableness

This dimension consists of the traits associated with people who are characterized by being likable (cheerful, gentle, good-natured) and cooperative (caring and trusting of others) (Judge et al., 1999). To operationalize this dimension, eight items were taken together to form a scale.

I am…

Kind	Harsh (R)	Unkind (R)	Rude (R)
Sympathetic	Cooperative	Warm	Inconsiderate (R)

* Note: (R) are items that are reversed

These items were assigned numbers from 1 (inaccurate) to 5 (accurate).

With the help of SPSS (Reliability Analysis) the Cronbach's alpha was calculated: 0.838. This number measures the internal consistency of the eight items. In this case, it indicates it is acceptable to combine the eight items; the combined items are homogeneous and thus closely related as a group. Furthermore, a factor analysis was performed and the Bartlett's test of sphericity and the Kaiser-Meyer-Olkin Measure (KMO) were considered, which gave insight into the extent of correlation; thus, I could determine whether there is sufficient correlation between the variables (items) (Hinton & Brownslow, 2004; Wijnen & Janssens, 2002). The Bartlett's test of sphericity gave a value of 0.000, which is less than the threshold 0.05, indicating there is sufficient correlation between the variables (items). The Kaiser-Meyer-Olkin Measure (KMO-test) gave a value of 0.823, which is higher than the threshold 0.50, also indicating there is sufficient correlation between the variables (items) (Hinton & Brownslow, 2004; Wijnen & Janssens, 2002).

However, the factor analysis shows one component/dimension with a value greater than one and a declaration of variance of 54.4%. Also, all the communalities (the declaration of variance per item) are high enough (> 0.20) (Hinton & Brownslow, 2004; Wijnen & Janssens, 2002).

3.2.1.5. Neuroticism

This dimension consists of the traits associated with people who are depressed, angry, embarrassed, anxious, insecure, and worried (Barrick et al., 1991). To operationalize this dimension, eight items were taken together to form a scale.

I am…

Envious (R)	*Anxious (R)*	*Jealous (R)*	*Moody(R)*
Emotional (R)	*Unworried*	*Unenvious*	*Unanxious*

* Note: (R) are items that are reversed

These items were assigned numbers from 1 (inaccurate) to 5 (accurate).

With the help of SPSS (Reliability Analysis) the Cronbach's alpha was calculated: 0.838. This number measures the internal consistency of the eight items. In this case, it indicates it is acceptable to combine the eight items; the combined items are homogeneous and thus closely related as a group. Furthermore, a factor analysis was performed and the Bartlett's test of sphericity and the Kaiser-Meyer-Olkin Measure (KMO) were considered, which gave insight into the extent of correlation. Thus, I could determine whether there is sufficient correlation between the variables (items) (Hinton & Brownslow,2 004; Wijnen & Janssens, 2002). The Bartlett's test of sphericity gave a value of 0.000, which is less than the threshold 0.05, indicating there is sufficient correlation between the variables (items). The Kaiser-Meyer-Olkin Measure (KMO-test) gave a value of 0.640, which is higher than the threshold 0.50, also indicating there is sufficient correlation between the variables (items) (Hinton & Brownslow, 2004; Wijnen & Janssens, 2002).

However, the factor analysis shows one component/dimension with a value greater than one and a declaration of variance of 65.8%. Also, all the communalities (the declaration of variance per item) are high enough (> 0.20) (Hinton & Brownslow, 2004; Wijnen & Janssens, 2002).

3.2.1.6. Summary

In this section, a summary of the separate scores of the personality dimensions is provided. First, the outcomes of the Cronbach's alpha, KMO-test, Bartlett's test of sphericity, and the declarations of variance are shown in **Error! Reference source not found.** 4.

Table 4. Summary Factor analyses of Big Five

	Mean	Cronbach's alpha (α)	KMO-test	Bartlett's test of Sphericity	Declaration of variance (%)	Mean scores
Openness	3.74	0.730	0.688	0.000	57.1	3.73

Conscientiousness	3.42	0.747	0.831	0.000	65.8	3.43
Extraversion	3,57	0.838	0.842	0.000	47.5	3.57
Agreeableness	4.06	0.765	0.823	0.000	54.4	4.06
Neuroticism	3.52	0.695	0.640	0.000	65.8	3.52

Each separate dimension also includes one component with a value greater than one, resulting in a minimum declaration of variance between 47.5% and 65.8%. According to Hinton and Brownslow (2004) and Wijnen and Janssens (2002), these values are minimum accepted declarations of variances. All communalities (declared variance per item) for each dimension are sufficiently high (> 0.20) (Hinton & Brownslow, 2004; Wijnen & Janssens, 2002;).

Based on the data presented in Table 4 and in this section, combining the items (statistical and scientific) into one variable/scale is acceptable.

3.2.2. Self-efficacy

Of the available scientific work on self-efficacy, the majority of that work concerns medical self-efficacy. Lorig et al. (1989) developed a questionnaire to measure the perceived self-efficacy of people suffering from arthritis. Unfortunately, this questionnaire was not the best option for this study because of the high focus on the medical side and on the perception of pain. Anderson et al. (1995) also developed a scale to measure self-efficacy. Its focus is on measuring self-efficacy beliefs of patients with chronic pain. This scale is also not appropriate for this study for the same reason as Lorig's questionnaire, namely that it is too focused on the medical and the perception of pain. Therefore, for the construct self-efficacy, the Sherer and Maddox (1982) self-efficacy scale, which consists of 23 items rated on a five-point scale (ranging from strongly disagree (1) to strongly agree (5)) (See Appendix E), was used. Seventeen of these items focus on self-efficacy and six on social self-efficacy. This scale was used because of its general-purpose feature, which can apply to several settings (Sherer and Maddox, 1982).

An example of these items is "When I make plans, I am certain I can make them work" (self-efficacy). In Appendix B, all the items are stated and positioned in the correct groups.

3.2.2.1. Self-efficacy

The items in the self-efficacy scale refer to self-efficacy without reference to any specific behavioral domain (Maddox & Sherer, 1982). To operationalize self-efficacy, the statements in Appendix E were answered.

With the help of SPSS (Reliability Analysis), the Cronbach's alpha was calculated: 0.838. This number measures the internal consistency of the items. In this case, it indicates it is acceptable to combine the 17 items; the combined items are homogeneous and thus closely related as a group. Furthermore, a factor analysis was performed and the Bartlett's test of sphericity and the Kaiser-Meyer-Olkin Measure (KMO) were considered, which gave insight into the extent of correlation. Thus, I could determine whether there is sufficient correlation between the variables (items) (Hinton & Brownslow, 2004; Wijnen & Janssens, 2002). The Bartlett's test of sphericity gave a value of 0.000, which is less than the threshold 0.05, indicating there is sufficient correlation between the variables (items). The Kaiser-Meyer-Olkin Measure (KMO-test) gave a value of 0.830, which is higher than the threshold 0.50, also

indicating there is sufficient correlation between the variables (items) (Hinton & Brownslow, 2004; Wijnen & Janssens, 2002).

However, the factor analysis shows one component/dimension with a value greater than one and a declaration of variance of 61.7%. Also, all the communalities (the declaration of variance per item) are high enough (> 0.20) (Hinton & Brownslow, 2004; Wijnen & Janssens, 2002)

3.2.2.2. Summary
This section summarizes the separate scores of the self-efficacy dimensions.

First, the outcomes of the Cronbach's alpha, KMO-test, Bartlett's test of sphericity, and the declarations of variance are shown in Table 5.

Table 5. Summary Factor analyses of self-efficacy

	Mean	Cronbach's alpha (α)	KMO-test	Bartlett's test of Sphericity	Declaration of variance (%)	Mean scores
Self-efficacy	3.88	0.825	0.830	0.000	61.7	3.88

Each separate dimension also includes one component with a value greater than one, resulting in a minimum declaration of variance between 58.1% and 61.7%. According to Wijnen and Janssens, (2002) and Hinton and Brownslow (2004), these values are minimum accepted declarations of variances. All communalities (declared variance per item) for each dimension are sufficiently high (> 0.20) (Hinton & Brownslow, 2004; Wijnen & Janssens, 2002). Based on the data presented in Table 5 and in this section, the items can be combined (statistical and scientific) into one variable/scale.

3.2.3. Firm survival
To assess the survival of the firms (dependent), the Chamber of Commerce numbers were manually examined to determine whether the company still existed because no other data was available in the data set to assess the survival of the firms. Therefore, no numbers could be linked to the firm performance. This resulted in a measure of survival with a yes/no answer, which creates many limitations. When a firm is no longer registered in the Chamber of Commerce, it could be due to positive reasons. According to Wennberg (2006), there are many "exit" strategies. Examples are a sale to an individual, liquidation, family succession, or an employee buyout. Retirement, mergers, and bankruptcy are also mentioned. The study concludes that many limitations are present when considering only the term survival or no survival. For example, if a company no longer exists in the Chamber of Commerce, it might have been sold for a significant amount of money. Unfortunately, this is the only data currently available to assess firm survival. No additional data is available.

3.3. Validity and Reliability

The validity and the reliability of the questionnaires was analyzed using factor analysis and the Cronbach's alpha test. These proved to be sufficient (see results). In this research, the measurement instrument Questionnaire was used to test respondents' perceived mindset on the variables self-efficacy and personality. A five-point scale was used, ranging from strongly disagree (1) to strongly agree (5) (self-efficacy) and ranging from inaccurate (1) to accurate (5) (personality). These questionnaires and scales were derived from existing scientific articles (Sherer & Maddox, 1982; Thompson, 2007).

3.4. Data Analysis

To test the hypotheses, linear regression analyses and logistic regression were used. Also, a possible mediator effect of self-efficacy was examined.

3.4.1. Logistic regression

According to Field (2009), logistic regression is "multiple regression but with an outcome variable that is categorical and predictor variables that are continuous or categorical" (p. 761). In other words, logistic regression predicts to which of two categories a person belongs. This is called a binary logistic regression (Field, 2009). In this study, binary logistic regression was used to analyze the dependent binary variable survival, as yes/no questions are easy to translate to the binary domain. The hypothesis shows that, for the relationship between personality (independent) and survival (dependent) and self-efficacy (independent) and survival (dependent), logistic regression must be used. Personality and self-efficacy are both continuous variables, which makes them highly suitable for logistic regression.

The conditions for (binary) logistic regression are as follows (Field, 2009):
1. Dependent variable must be binary.
2. The dependent variable must be coded in the correct way; factor level one should represent the desired outcome.
3. Only meaningful variables should be included in the model.
4. Independent variables should be independent from each other; little or no multicollinearity must be present.
5. Independent variables should be related to log odds of output variables.

Multicollinearity can affect the parameters of a regression model. This can also happen for logistic regression. Thus, a test for collinearity must be done. Tolerance values less than 0.1 and VIF values greater than 10 indicate a problem (Field, 2009). Logistic regression usually combines both normal and binomial distribution.

3.4.2. Linear regression

Correlation techniques can be used when the interest lies in the amount of cohesion between two variables (dependent and independent). With linear regression, the target is to try to predict the dependent variable via a linear relationship with the independent variable (Field, 2009). The

independent variable in linear regression can be either discrete or continuous, while the dependent variable must be continuous (Field, 2009).

The following conditions must be met for linear regression (Montgomery et al., 2012):

1. Variables need to be measured on a continuous level.
2. No significant outliers should be present in the data.
3. There must be independence of observations.
4. The relationship between the variables must be linear.
5. Residuals need to be normally distributed.
6. There needs to be homoscedasticity.

The linear regression method can be used on the variables personality and self-efficacy because of their continuous nature. Therefore, the effect of personality (Big Five) on self-efficacy was tested using linear regression.

3.4.3. Mediation effect

The mediator is a variable that reduces the effect of the strength of the relationship between predictor and outcome (C') (Field, 2009) (see Figure 6). According to Field (2009), "Perfect mediation occurs when the relationship between a predictor variable and an outcome variable can be completely explained by their relationship with a third variable" (p. 408).
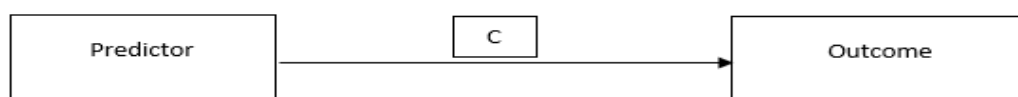
Figure 5. Simple relationship (Field, 2009, p. 408)
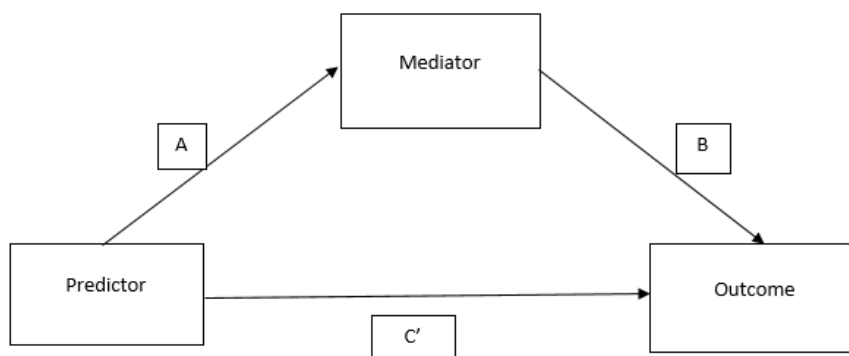
Figure 6. Mediated relationship (Field, 2009, p. 408)

A basic figure of a simple relationship between a predictor and an outcome (C) is depicted in Figure 5. However, it is also possible a third variable plays a role in the effect.

To test the mediation effect, the following conditions should be met (Field, 2009):

1. The predictor variable must significantly predict the outcome variable in Figure 5.
2. The predictor variable must significantly predict the mediator variable in Figure 6.
3. The mediator variable must significantly predict the outcome variable in Figure 6.
4. The predictor variable must predict the outcome variable (C') is weaker than in the normal situation (C).

A PROCESS file needs to be added to SPSS to statistically test the mediation effect using SPSS (retrieved from www.afhayes.com). Then, "analyze regression" needs to be selected, and the process file should be chosen. Selection boxes will appear for the outcome variable (Y), the independent variable (X), and a mediating variable (M). For the outcome variable, firm survival was chosen; for the independent variable, the Big Five was chosen; and for the mediating variable, the self-efficacy was chosen. If a difference between the results of C and C' was observed, a Sobel test needed to be executed to verify the significance of the difference in the mediation effect (Preacher & Hayes, 2004). The Sobel test is a traditional method of testing and is commonly used for this purpose.

4. Results

4.1. Empirical results

4.1.1. Correlations between the variables

In Table 6, correlations between a variety of variables are shown. Correlations correspond to the direction and strength of the linear relationship among variables. These variables are firm survival, big five personality traits, and self-efficacy. A significant correlation between firm survival and self-efficacy ($r = -0.193$, $p < 0.05$) is observed; however, it is an inversely proportional correlation. All the other variables have no significant relationship with firm survival.

Furthermore, the variables extraversion ($r = 0.261$, $p < 0.01$), openness ($r = 0.271$, $p < 0.01$), neuroticism ($r = 0.203$, $p < 0.01$), conscientiousness $r = 0.293$, $p < 0.01$), and agreeableness ($r = 0.261$, $p < 0.01$) seem to significantly correlate with self-efficacy. In the next section, the hypotheses will be tested using logistic regression and linear regression.

Table 6. Correlation matrix

	1	2	3	4	5	6	7
1. Firm survival	x						
2. Extraversion	-0.084	x					
3. Openness	-0.034	0.080	x				
4. Neuroticism	-0.121	0.111	0.114	x			
5. Conscientiousness	-0.115	0.012	0.258**	0.246**	x		
6. Agreeableness	-0.042	0.174*	0.193**	0.198*	0.101	x	
7. Self-efficacy	**-0.193***	**0.261****	**0.271****	**0.203****	**0.293****	**0.261****	x

*$p<0.05$, **$p<0.01$*

4.1.2. Hypothesis testing with firm survival as dependent variable

In this analysis, the impact of the Big Five on firm survival was examined by analyzing the assumptions of regression first. The variance inflation factors and the collinearity statistics tolerance were all close to the accepted limits of the value 1 (See Table 7). Furthermore, Cook's distance and Mahalanobis scores showed no multivariate outliers. The Durbin-Watson test resulted in a score of 2.164, which gives no reason for concern (Field, 2009). Finally, scatter and residual plots show the assumptions of reasonable linearity, homoscedasticity, and normality are present (Field, 2009).

Table 7. Collinearity Statistics for Big Five, with firm survival as dependent variable

Collinearity Statistics

	Model	Tolerance	VIF
		Collinearity Statistics	
1	Extraversion	0.961	1.041
	Openness	0.902	1.108
	Neuroticism	0.903	1.108
	Conscientiousness	0.884	1.131
	Agreeableness	0.911	1.098

a.   Dependent Variable: Survival of firm

To test the hypothesis, logistic regression was completed on the five constructs openness, conscientiousness, extraversion, agreeableness, neuroticism, and survival of firm (dependent). The results of that regression statistics are shown in Table 8.

Table 8. Variables in the equation, personality and Firm survival

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Extraversion	-0.243	0.272	0.802	1	0.370	0.784
	Openness	0.033	0.368	0.008	1	0.928	1.034
	Neuroticism	-0.362	0.337	1.153	1	0.283	0.696
	Conscientiousness	-0.385	0.346	1.237	1	0.266	0.681
	Agreeableness	-0.030	0.413	0.005	1	0.943	0.971
	Constant	4.348	2.295	3.590	1	0.058	77.314

a. Variable(s) entered on step 1: Extraversion, Openness, Neuroticism, Conscientiousness, Agreeableness.

Afterward, these results were compared to this study's hypotheses on the link between the Big Five personality traits and firm survival. There was no significance between any of the five constructs and firm survival. Thus, none of the five hypotheses are supported; therefore, H1a, H1b, H1c, H1d, and H1e are all rejected.

Table 9. Model summary for personality and firm survival

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square

1	184.098[a]	0.028	0.040

a. Estimation terminated at iteration four because parameter
estimates changed by less than 0.001.

For the table R^2 in logistical regression, Hosmer and Lemeshow (2000) pointed out that these measures do not assess goodness-of-fit, and therefore, they do not have to be reported in the analysis of logistical regression.

4.1.3. Hypothesis testing with self-efficacy as dependent variable

The second analysis was on the influence of the Big Five on self-efficacy. The first analysis concerned self-efficacy. The variance inflation factors and the collinearity statistics tolerance were all close to the accepted limits of the value 1 (See Table 10). Furthermore, Cook's distance and Mahalanobis scores showed no multivariate outliers. The Durbin-Watson test resulted in a score of 1.411, which is not ideal; however, there is no major reason for concern (Field, 2009). Finally, scatter and residual plots indicated the assumptions of reasonable linearity, homoscedasticity, and normality are present (Field, 2009).

Table 10. Collinearity Statistics, self-efficacy as dependent variable

Collinearity Statistics

		Collinearity Statistics	
Model		Tolerance	VIF
1	Extraversion	0.961	1.041
	Openness	0.902	1.108
	Neuroticism	0.903	1.108
	Conscientiousness	0.884	1.131
	Agreeableness	0.911	1.098

a. Dependent Variable: Self-efficacy

To test the hypotheses, linear regression was completed on the five constructs openness, conscientiousness, extraversion, agreeableness, neuroticism, and self-efficacy (dependent). The results of that regression statistics are shown in Table 11.

Table 11. Coefficient results with self-efficacy as dependent variable.

Coefficients[a]

		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.234	0.432		2.858	0.005
	Extraversion	0.150	0.053	0.210	2.842	0.005
	Openness	0.153	0.073	0.159	2.090	0.038

Neuroticism	0.068	0.066	0.078	1.026	0.306
Conscientiousness	0.183	0.066	0.214	2.780	0.006
Agreeableness	0.166	0.081	0.156	2.059	0.041

a. Dependent Variable: Self-efficacy

In this analysis, the influence of the Big Five on self-efficacy was analyzed. To test the hypotheses, linear regression was performed with extraversion, openness, neuroticism, conscientiousness, and agreeableness as independent variables and self-efficacy as the dependent variable. H2a states entrepreneurs who are extraverted will have a positive effect on self-efficacy. This hypothesis is accepted because of a significant positive effect found: $b = 0.150$ and $p < 0.01$. Hypothesis H2b states entrepreneurs who are conscientious will have a positive effect on self-efficacy. This hypothesis is accepted with $b = 0.183$ and $p < 0.01$. Hypothesis H2c is rejected because no significant effect is proven with $p > 0.05$. However, for H2d, with $b = 0.166$ and $p < 0.05$, agreeable people will have a positive effect on self-efficacy, which is also true for open people: $b = 0.153$ and $p < 0.05$.

Table 12. Model Summary for personality and self-efficacy

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.466[a]	0.218	0.191	0.43990

a. Predictors: (Constant), Agreeableness, Conscientiousness, Extraversion, Neuroticism, Openness

R^2 gives a value of 0.218. This means the Big Five personality dimensions account for 21.8% of the variation in self-efficacy. Thus, 78.2% of the variation in firm survival is not explained by the Big Five factors. ANOVA Results are $F = 8.285$ with $p < 0.001$, which indicates this model is a statistically significant predictor of firm survival.

4.1.4. Hypothesis testing with firm survival as dependent variable

In this analysis, the influence of self-efficacy was tested on firm survival. First, the assumptions of regression were analyzed. The variance inflation factors and the collinearity statistics tolerance were all close to the accepted limits of the value 1 (See Table 13). Furthermore, Cook's distance and Mahalanobis scores showed no multivariate outliers. The Durbin-Watson test resulted in a score of 1.885, which gives no reason for concern (Field, 2009). Finally, scatter and residual plots indicated the assumptions of reasonable linearity, homoscedasticity, and normality are present (Field, 2009).

Table 13. Collinearity Statistics, survival of firm as dependent variable

Coefficients[a]

Model		Collinearity Statistics	
		Tolerance	VIF
1	Self-efficacy	0.767	1.303

a. Dependent Variable: Survival of firm

To test the hypothesis, logistic regression was performed on the construct self-efficacy and survival of firm (dependent). The results of that regression statistics are shown in Table 14.

Table 14. Variables in the equation, self-efficacy and Firm survival

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Self-efficacy	-0.965	0.442	4.756	1	0.029	0.381
	Constant	4.467	1.612	7.677	1	0.006	87.078

a. Variable(s) entered on step 1: Self-efficacy

After testing the hypotheses on the connection between self-efficacy (independent) and survival (dependent), the following conclusion can be made: Hypothesis H3a is rejected with b = -0.965 and p < 0.05. This might be odd as the p-value is significant; however, there is a negative slope value with B as a negative value. Thus, self-efficacy does not have a positive effect on firm survival, merely strong negative one.

Table 15. Model summary of self-efficacy and firm survival.

Model Summary

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	182.465[a]	0.038	0.054

a. Estimation terminated at iteration four because parameter estimates changed by less than 0.001.

Regarding R^2 in logistical regression, Hosmer and Lemeshow (2000) pointed out those measure do not assess goodness-of-fit, and therefore, they do not have to be reported in the analysis of logistical regression.

4.2. Mediation effect of Self-efficacy

Regarding the assumptions needed to support a mediating effect, the most important has not been met. There is no significant connection found between personality and firm survival. Therefore, no mediation effect is present in this study because the direct effect is not present.

5. Discussion

This thesis intended to study the effect of personality (i.e., the Big Five) of nascent entrepreneurs in the Netherlands on firm survival and to examine the effect of self-efficacy in this process to help starting entrepreneurs understand personality characteristics necessary to successfully start up a business. For this research, the Big Five mini markers (Thompson, 2007) and the self-efficacy scale (Sherer & Maddox, 1982) were used, and questionnaires were completed by 155 starting entrepreneurs at Venture Lab. The research question that had to be answered was "To what extent do the Big Five personality traits relate to self-efficacy and the survival of the firm?"

5.1. Table of the Hypotheses

The results of the hypotheses are shown in Table 16:

Table 16. Results of hypotheses (Y = yes, N = no, NS = not significant)

Hypothesis	Expected	Result	Supported	Hypothesis	Expected	Result	Supported
H1a	+	NS	N	H2e	+	+	Y
H1b	+	NS	N	H3a	+	-	N
H1c	-	NS	N	H4a	+	NS	N
H1d	+	NS	N				
H1e	-	NS	N				
H2a	+	+	Y				
H2b	+	+	Y				
H2c	-	+	N				
H2d	+	+	Y				

5.2. Findings expected

Evidence was found of a strong relationship between self-efficacy and the personality constructs. As presented in Table 16, four of the five constructs have a positive influence on self-efficacy. This was also what the theory stated.

H2a. Entrepreneurs who are extraverted will have a positive effect on self-efficacy.

This hypothesis is supported by the results, which are in line with the empirical results that state entrepreneurs who are extraverted will demonstrate a more positive self-efficacy than people who are introverted. The relationship can be explained because people who are extravert are more certain about their capabilities than introverted people. Since self-efficacy illustrates self-confidence and trusting in one's own capabilities, it is logical to assume a positive relationship. Also, extraversion increases positive reactions from others, which can lead to higher self-efficacy (Judge & Ilies, 2002).

H2b: Entrepreneurs who are conscientious will have a positive effect on self-efficacy.

This hypothesis is supported by the results, which are in line with the empirical results that state entrepreneurs who are conscientious will demonstrate a more positive self-efficacy than people who are not conscientious. The relationship can be explained by motivation being stressed as important in the conscientiousness literature (Barrick et al., 2001). Motivation also plays a highly important part in

Bandura's self-efficacy theory (1997). Thus, these two constructs are connected because of their positive similarities in both theories and on each other. Also, conscientiousness increases effort and task engagement, giving a person greater self-efficacy beliefs (Brown et al., 2011).

H2d: Entrepreneurs who are agreeable will have a positive effect on self-efficacy.

This hypothesis is supported by the results, which are in line with the empirical results that state entrepreneurs who are agreeable will demonstrate a more positive self-efficacy than people who are not agreeable. The relationship can be explained by agreeableness easing entry into activities that are new, skills which can lead to increasing self-efficacy (Caprara et al., 2009). Also, agreeable people are kind, warm, trustworthy, and gentle. These aspects make them accessible to people, which might give them the tools to cope with difficulties backed up by their network. This gives them confidence and positive self-efficacy.

H2e: Entrepreneurs who are open will have a positive effect on self-efficacy.

This hypothesis is supported by the results, which are in line with the empirical results that state entrepreneurs who are open will demonstrate a more positive self-efficacy than people who are not open. The relationship might be explained by individuals who are open being open to new experiences. Thus, they have the confidence to tackle new, unknown ventures. This demonstrates a strong self-efficacy belief. Also, openness shifts perceptions of demand into challenges that must be dealt with, increasing self-efficacy and task engagement (Sanchez-Cordona et al., 2012).

5.3. Unexpected findings

Many of the findings in the thesis are surprising. The most surprising was that there was no significant link found between the Big Five constructs and firm survival. Thus, hypotheses H1a, H1b, H1c, H1d, and H1e are all rejected. This contradicts prior research, which says an entrepreneur's personality plays a vital role in the survival of a firm (Cantner et al., 2011; Ciavarella et al., 2004; Kaczmarek & Kaczmarek-Kurczak, 2016; Schmitt-Rodermund, 2004). This lack of significance might be explained by t this research using a relative small measurement instrument to measure the Big Five dimensions. Although this scale has proven reliable in research, lesser results were achieved in comparison to others. Also, the items were all reported in English, while all the respondents were Dutch. This can make the taxonomy unideal. Words that, according to the dictionary have the same meaning in different languages, can have another meaning in the common sense. This also can be an explanation for the absence of significant results. Furthermore, in other empirical work, the constructs of the Big Five were measured and defined differently, which could also explain the different results. This does not mean there is no relationship, just that a relationship was not found in this research. This also made it impossible to test whether there was any chance of mediating effects happening as the direct link was not there (H4a).

H2c. Entrepreneurs who are neurotic will have a negative effect on self-efficacy

In the link between neuroticism and self-efficacy (H2c), there was also no significance detected. Therefore, there was no support for the hypothesis saying that neuroticism has a negative effect on self-efficacy, thus contradicting existing literature. This may be because neuroticism highlights a

negative aspect of personality and people tend to self-assess themselves positively. Examples of items reflecting neuroticism are being jealous, emotional, envious, anxious, and moody. Thus, chances of biased -and socially desired answers are high and might influence the results.

Hypothesis 3a: Entrepreneurs who score high on self-efficacy will have a positive effect on firm survival.

Also unexpected was the fact self-efficacy is significantly connected to firm survival, but in a negative way. The hypothesis was self-efficacy has a positive effect on firm survival (H3a); however, it has a negative effect. Thus, having strong self-efficacy decreases the chances of firm survival. This is not logical and goes against existing empirical work. One explanation could be there is a difference in the way the constructs are measured and defined in this thesis in comparison to the other empirical work, thus garnering other results. Also, it is of interest to consider that an entrepreneur with too much self-efficacy could be negative for a firm's result and survival. Being too confident and trusting too much in one's own capabilities could, at one point, affect the venture negatively because the entrepreneur can think that he/she can do everything on his/her own.

6. Conclusions

6.1. Implications for practice

The results of this thesis indicate self-efficacy has a strong negative influence on firm survival. This goes against the majority of existing literature. Thus, perhaps the focus in practice should not be on helping a starting entrepreneur gain a better sense of self-efficacy.

Also, there is a strong link between personality and self-efficacy in general, which means that helping someone develop into an "ideal" entrepreneur may also give that person the self-confidence and the faith to actually succeed. As the results indicate, four of the five personality constructs have a positive influence on self-efficacy.

This research also indicates there is no link between the Big Five personality constructs and firm survival, which is surprising considering existing literature. This denotes the whole influence of the starting entrepreneur in a new firm, from a character view point. From a practical viewpoint, this might mean the focus should not be on developing the entrepreneur's personality but on other areas. These findings might be useful for people who provide counseling to those who want to be entrepreneurs because the results give an indication of an entrepreneur's needed personality for people who fund entrepreneurial ventures, because they can determine whether the entrepreneur has the right personality to run a venture, and of course, entrepreneurs who are not sure if they possess the qualities to be successful.

6.2. Implications for research

The results contradict most existing theoretical work, saying that no link between the nascent entrepreneur's personality and the chances of firm survival exists. This gives a genuinely interesting twist to the discussion on the influence of the entrepreneur on firm survival. Further research should be completed on this subject to investigate this discrepancy.

The relationship between self-efficacy and firm survival has a strong negative effect. This is contrary most of existing empirical work. Research states self-efficacy has a positive effect on firm survival. Thus, further specific research must be conducted to gain more knowledge on this.

The little specific research on entrepreneurial personality and firm survival was surprising. There is considerable research on personality and performance, but specific firm survival is not often tackled. This thesis might be a valuable starting point to dig deeper into the matter and may find more specific personality markers that do have a significant relationship with firm survival, contrary to the results found.

The results of the link between self-efficacy and personality were very significant. Although the main focus of this study was on personality and firm survival, this looked very promising and might be interesting to do more research on.

6.3. Limitations

First, data on firm survival was minimal. Only Chamber of Commerce numbers indicating the present state of the firm (exist or do not exist) were available. This is not ideal because firms might be sold for

high amounts of money or may be part of a successful merger. This makes the data rough and does not give a good image of the firm's present situation (Wennberg, 2006)

Secondly, there is only data for the starting entrepreneurs at one point in time, which is not ideal as self-efficacy, for instance, is seen as changeable (Bandura, 1977, 1995), especially in an incubation variable like this one, where training and coaching are also present. It would be of interest to discover the influence of that training and coaching on self-efficacy. Traits, however, cannot be changed or change slowly.

Third, the timeframe of the data is five years in the past. The starting entrepreneurs' environment might have changed (current economic situation in the Netherlands, for instance). This could alter the perception of certain aspects, such as the scores they give themselves on certain personality characters and the trust they have in themselves (self-efficacy) to successfully run a firm. Also, at that time, there was an economic crisis in the Netherlands, affecting the entrepreneurs' trust in the economy and possibly making them insecure, which can affect scores.

Fourth, participants of Venture Lab were different ages, genders, and races, but specific data was not given in the sample. Thus, demographic factors were not available. If these factors had been available, it would have been possible to compare them to the actual population of Dutch start-ups. With the absence of these factors, I could not conclude the sample is a favorable indicator of the total population of Dutch start-ups.

Fifth, participants could sign in for the Venture Lab project, which is not ideal as the participant's pool was limited. The sampling of the participants was done based on interviews, curriculum vitae, and motivational letters of the people who wanted to participate. Therefore, the constructs may be biased because of the selection method.

Sixth, the participants had to assess their own personality scores, so the data gathering was a self-assessment. Self-assessments tend to yield higher ratings than actually present. Participants gave self-ratings on their own personalities; thus the chance of biased and socially desired answers was higher than for non-self-assessments. This affects the generalizability of the results to a larger population.

Seventh, there is no a grouping of the participants based on industry. Therefore, there is no grouping on the sort of ventures used for the research. Thus, all ventures are seen as equal, while there are all kind of ventures that operate in different industries, which might have other requirements for success. Thus, no statements can be made on industries that might have other requirements in comparison to each other.

Lastly, this study was only conducted with Dutch starting entrepreneurs. Thus, there might be some issues with external validity because there are many different countries with different cultures in the world. Each culture has a different understanding and point of view on what is good and bad. One should be mindful when generalizing these results to other countries, particularly countries outside the European Union with larger cultural differences.

7. Bibliography

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8. Appendices

8.1. Appendix A: Big-Five Mini-Markers
Source: Thompson(2007)

1.	Shy	21.	Jealous
2.	Talkative	22.	Unenvious
3.	Energetic	23.	Moody
4.	Quiet	24.	Unanxious
5.	Extraverted	25.	Efficient
6.	Outgoing	26.	Disorganized
7.	Reserved	27.	Careless
8.	Untalkative	28.	Untidy
9.	Creative	29.	Neat
10.	Intellectual	30.	Inefficient
11.	Unimaginative	31.	Systematic
12.	Artistic	32.	Organized
13.	Intelligent	33.	Kind
14.	Philosophical	34.	Sympathetic
15.	Deep	35.	Harsh
16.	Uncreative	36.	Cooperative
17.	Envious	37.	Unkind
18.	Emotional	38.	Warm
19.	Anxious	39.	Rude
20.	Unworried	40.	Inconsiderate

8.2. Appendix B: The Self-Efficacy Scale
Source: Sherer et al.(1982)

General Self-efficacy:

1. When I make plans, I am certain I can make them work.
2. One of my problems is that I cannot get down to work when I should. (R)
3. If I can't do a job the first time, I keep trying until I can.
4. When I set important goals for myself, I rarely achieve them. (R)
5. I give up on things before completing them. (R)
6. I avoid facing difficulties. (R)
7. If something looks too complicated, I will not even bother to try it. (R)
8. When I have something unpleasant to do, I stick to it until I finish it.
9. When I decide to do something, I go right to work on it.
10. When trying to learn something new, I soon give up if I am not initially successful. (R)
11. When unexpected problems occur, I don't handle them well. (R)
12. I avoid trying to learn new things when they look too difficult for me. (R)
13. Failure just makes me try harder.
14. I feel insecure about my ability to do things. (R)
15. I am a self-reliant person.
16. I give up easily. (R)
17. I do not seem capable of dealing with most problems that come up in life. (R)

Social Self-Efficacy:

18. It is difficult for me to make new friends. (R)
19. If I see someone I would like to meet, I go to that person instead of waiting for him or her to come to me.
20. If I meet someone interesting who is hard to make friends with, I'll soon stop trying to make friends with that person. (R)
21. When I'm trying to become friends with someone who seems uninterested at first, I don't give up easily.
22. I do not handle myself well in social gatherings. (R)
23. I have acquired my friends through my personal abilities at making friends.

Note: (R) denotes items recoded in direction of high self-efficacy.

8.3. Appendix C: Introductory remarks

Source: Venture Lab Participants profile

Introductory remarks

This profile questionnaire helps us get to know you even better than we already do based on the interview, your CV, and your motivation letter. This is important because the Venture Lab program is to a large extent a personalized coaching and training program. This means that part of the results of this questionnaire will be fed back to you and directly used during some of the trainings. Another important reason is that we aim to conduct research on the VentureLab program to find out how we can continually improve the program.

For these reasons, it is important that you fill out this questionnaire as honestly as possible. In our view, very different persons with very different backgrounds can be successful entrepreneurs. This means that there are no right or wrong answers in this questionnaire. It is your honest response that is important. The questionnaire is not an assessment and your answers will not affect the decision whether or not you will be accepted for the program.

Confidentiality

Your answers to this survey will be treated as strictly confidential and will be treated anonymously. Any research report that might be written would typically report only aggregated, and not individual, results. However, within the Venture Lab program we do ask your permission to share your personal responses with your individual coach and trainers when required for the program.

Instructions

The questionnaire consists of multiple choice questions. It usually takes 2 to 3 hours to fill out this survey. We advise you to take a short break after Part 3. Try to answer the questions as honestly as you can and work as quickly as possible – fill out the first answer that comes to your mind.

Kind regards,

Venture Lab Team.

8.4. Appendix D: Questionnaire Big Five dimensions
Source: Venture Lab Participants profile

Part 2: Your Personality (1/4)

This part of the questionnaire asks a variety of questions about you as a person. Please keep in mind that we are not looking for someone particular and your responses will not affect your eligibility for the Venture Lab program. There are no right or wrong answers. Try to answer honestly and work quickly.

2.1   Please use the below list of common human traits to describe yourself as accurately as possible. Describe yourself as you really are compared to other people you know of the same age and sex, not as you wish to be. Please rate each of the characteristics in terms of how accurately (or inaccurately) it describes you.

	Inaccurate				Accurate		Inaccurate				Accurate
	1	2	3	4	5		1	2	3	4	5
01. Shy	0	0	0	0	0	21. Jealous	0	0	0	0	0
02. Talkative	0	0	0	0	0	22. Unenvious	0	0	0	0	0
03. Energetic	0	0	0	0	0	23. Moody	0	0	0	0	0
04. Quiet	0	0	0	0	0	24. Unanxious	0	0	0	0	0
05. Extraverted	0	0	0	0	0	25. Efficient	0	0	0	0	0
06. Outgoing	0	0	0	0	0	26. Disorganized	0	0	0	0	0
07. Reserved	0	0	0	0	0	27. Careless	0	0	0	0	0
08. Untalkative	0	0	0	0	0	28. Untidy	0	0	0	0	0
09. Creative	0	0	0	0	0	29. Neat	0	0	0	0	0
10. Intellectual	0	0	0	0	0	30. Inefficient	0	0	0	0	0
11. Unimaginative	0	0	0	0	0	31. Systematic	0	0	0	0	0
12. Artistic	0	0	0	0	0	32. Organized	0	0	0	0	0
13. Intelligent	0	0	0	0	0	33. Kind	0	0	0	0	0
14. Philosophical	0	0	0	0	0	34. Sympathetic	0	0	0	0	0
15. Deep	0	0	0	0	0	35. Harsh	0	0	0	0	0
16. Uncreative	0	0	0	0	0	36. Cooperative	0	0	0	0	0
17. Envious	0	0	0	0	0	37. Unkind	0	0	0	0	0
18. Emotional	0	0	0	0	0	38. Warm	0	0	0	0	0
19. Anxious	0	0	0	0	0	39. Rude	0	0	0	0	0
20. Unworried	0	0	0	0	0	40. Inconsiderate	0	0	0	0	0

8.5. Appendix E: Questionnaire Self-efficacy scale
Source: Venture Lab Participants profile

Part 3: Your behavior (2/5)

3.2   Below you find a number of statements. You will probably agree with some of the statements and disagree with others. Please indicate your own personal feelings about each statement below by checking the box that best describes your attitude or feeling. Please be very truthful and describe yourself as you really are, not as you would like to be. Work quickly

	Strongly disagree				Strongly agree
	1	2	3	4	5
01. When I make plans, I am certain I can make them work.	0	0	0	0	0
02. One of my problems is that I cannot get down to work when I should.	0	0	0	0	0
03. If I can't do a job the first time, I keep trying until I can.	0	0	0	0	0
04. It is difficult for me to make new friends.	0	0	0	0	0
05. When I set important goals for myself, I rarely achieve them.	0	0	0	0	0
06. I give up on things before completing them.	0	0	0	0	0
07. If I see someone I would like to meet, I go to that person instead of waiting for him or her to come to me.	0	0	0	0	0
08. I avoid facing difficulties.	0	0	0	0	0
09. If something looks too complicated, I will not even bother to try it.	0	0	0	0	0
10. If I meet someone interesting, who is very hard to make friends with, I'll soon stop trying to make friends with that person.	0	0	0	0	0
11. When I have something unpleasant to do, I stick to it until I finish it.	0	0	0	0	0
12. When I decide to do something, I go right to work on it.	0	0	0	0	0
13. When trying to learn something new, I soon give up if I am not initially successful.	0	0	0	0	0
14. When I'm trying to become friends with someone who seems uninterested at first, I don't give up very easily.	0	0	0	0	0
15. When unexpected problems occur, I don't handle them well.	0	0	0	0	0
16. I avoid trying to learn new things when they look too difficult for me.	0	0	0	0	0
17. Failures just make me try harder.	0	0	0	0	0
18. I do not handle myself well in social gatherings.	0	0	0	0	0
19. I feel insecure about my ability to do things.	0	0	0	0	0
20. I am a self-reliant person.	0	0	0	0	0
21. I have acquired my friends through my personal abilities at making friends.	0	0	0	0	0
22. I give up easily.	0	0	0	0	0
23. I do not seem capable of dealing with most problems that come up in my life.	0	0	0	0	0