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**Memories of an entrepreneur's career: When successes
and failures occur and what lessons they teach**

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Abstract

The purpose of this thesis was to tap the autobiographical memory of entrepreneurs as a resource for learning about successes and failures of relevance to their careers. In an online survey, entrepreneurs were asked to recall experiences of success and failure, date these experiences, and assess how much they learnt as a result. I examined the types of experiences reported, their timing, and learning from success and failure. I also compared how user entrepreneurs differ from non-user entrepreneurs on the above dimensions. Results showed interesting regularities about the timing of memories of success versus failure. Consistent with the extant literature on learning from experience, I found that entrepreneurs learn more from failure, and that they tend to attribute success to internal factors, whereas they attribute failure to external factors. I found that user entrepreneurs report learning less from both experiences of success and failure, but the knowledge user entrepreneurs possess at the start of their careers is positively associated with subsequent learning from experience. I discuss the implications of these findings for the study of entrepreneurship and suggest directions for future research.

Resumo

O objectivo da presente tese foi utilizar memórias autobiográficas de empreendedores como um recurso para estudar sucessos e fracassos relevantes para as suas carreiras. Utilizando um questionário online, foi pedido aos empreendedores para recordarem experiências de sucesso e fracasso, datá-las, e avaliar o quanto aprenderam através das mesmas. Eu examinei os tipos de experiências recordadas, o seu momento cronológico, e a aprendizagem pelos sucessos e pelos fracassos. Adicionalmente comparei como os empreendedores usuários diferem dos empreendedores não usuários nas dimensões acima definidas. Os resultados demonstraram padrões interessantes sobre a cronologia das memórias de sucesso versus fracasso. Consistente com a extensa literatura sobre aprendizagem pela experiência, encontrei evidências que os empreendedores aprendem mais através dos fracassos, e que os mesmos tendem a atribuir os sucessos a factores internos, enquanto tendem a atribuir os fracassos a factores externos. Eu descobri igualmente que os empreendedores usuários reportaram aprender menos quer pelos sucessos quer pelos fracassos, mas que o conhecimento que estes empreendedores possuem no início da sua carreira está positivamente associado com mais aprendizagem pela experiência. Eu apresento as implicações destes resultados para o estudo do empreendedorismo e sugiro direcções para futura investigação.

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Introduction

What do Mark Zuckerberg, Steve Jobs, Bill Gates, Richard Branson and John Rockefeller have in common? They are known to have succeeded as entrepreneurs. And apart from the considerable wealth and added value that these men generated for both shareholders and society, they all experienced successes and failures as they developed their innovative ideas from early prototypes and dreams to marketable products, award-winning services and entire corporations.

But what does it mean to be an entrepreneur and why is it important that entrepreneurs achieve success? Schumpeter (1949) argued that the entrepreneur emerges as an agent of change motivated to satisfy market needs with novel products or services. According to Ernst & Young (2012), a solid entrepreneurial culture is the foundation of a dynamic economy. Specifically, entrepreneurship emerges as a vehicle for the development of societies by supporting the creation of new jobs, promoting the spirit of creativity and innovation and sustaining a solid concern for social responsibility. Jeffrey Timmons, an entrepreneurship expert, argues that “entrepreneurship is a silent revolution, which will be more important for the XXI century than the Industrial Revolution was for the XX century” (Timmons, 1994, p.55).

The silent revolution seems indeed to be spreading. According to the Global Entrepreneurship Monitor (Kelley, Singer, & Herrington, 2012), there are currently 400 million active entrepreneurs all over the globe. Of these people, approximately 140 million are planning to generate at least 5 new jobs in a period of 5 years. In fact, some have argued that in times of a financial crisis, the rise of unemployment in western economies could be

used as a mean to build wealth through the rise of self-employment to solve specific market needs (Gerber, 2012).

However, can anyone become an entrepreneur or are there systematic ways in which entrepreneurs differ from non-entrepreneurs? According to the available literature, entrepreneurs do often differ from non-entrepreneurs (Puri & Robinson, 2006; Bluedorn & Martin, 2008). For instance, Puri and Robinson (2006) find that entrepreneurs are considerably more optimistic than non-entrepreneurs, and tend to have longer planning horizons. Moreover, entrepreneurs tend to have a higher likelihood of being married (with strong family relationships, and more children than is the case for non-entrepreneurs), they follow good health practices and are more willing to take risks. The same authors show that entrepreneurs are more likely to have higher levels of education than non-entrepreneurs (Puri & Robinson, 2006). Robert Litan, Vice-President of Research and Policy of the Kauffman Foundation, notes that, indeed, “entrepreneurs who find success without higher education are exceptions to the rule” (as cited in Zwillling, 2011). Additionally, Bluedorn and Martin (2008) point to interesting ways in which entrepreneurs differ from non-entrepreneurs in terms of their attitudes towards time and temporal orientation.

Examining important events in the careers of entrepreneurs can shed further light on what it means to be an entrepreneur. For example, as noted in the opening example, most entrepreneurs are bound to have experienced both successes and failures throughout their careers. Various scholars have written about the importance of the successes and failures for how entrepreneurs perform after such experiences (Shepherd, 2004; Shepherd, Patzelt, & Wolfe, 2011; Ucbasaran, Westhead, & Wright, 2011). Also, according to the Global Entrepreneurship Monitor, “fear of failure” is considered to be one of the important barriers

to entrepreneurship. In Portugal, 39.6% of those who see entrepreneurial opportunities report to fear failure in 2011 (Kelley, Singer, & Herrington, 2012). However, research shows that failures may lead to the acquisition of important knowledge and even an increased probability of success in the future (Minniti & Bygrave, 2001). According to Richard Branson, the CEO of the Virgin Group, learning from previous experiences is crucial and experiences of failure deserve more thorough scrutiny than experiences of success (as cited in Dearlove, 2007). From Branson's point of view, "a setback is never a bad experience, just a learning curve" (as cited in Dearlove, 2007). Nevertheless, while significant differences in attitudes towards failure in entrepreneurial career are known to exist among different countries (i.e. Americans are believed to be more tolerant of failures than Europeans) (Kelley, Singer, & Herrington, 2012), the question of when and what entrepreneurs learn from their prior successes and failures remains under-researched.

Examining entrepreneurs' experiences throughout their careers is far from being a simple task. In fact, to study the impact of experiences of success and failure it is typically necessary to conduct longitudinal studies of entrepreneurial activity, which is time-consuming and costly. In this thesis, I propose to tap autobiographical memory of entrepreneurs as an important resource for studying what experiences of success and failure entrepreneurs have throughout their careers, when these experiences occur, and how entrepreneurs learn from these experiences.

There are several reasons why a research project such as this one is long overdue. In a recent article, Richard Branson stated that some standard procedures and guidelines are always taken in consideration when making business decisions (Branson, 2012). Thus, some features of the experiences of success and failure that I will examine are likely to be

generalizable for all entrepreneurs. Branson (2012) further argues that being able to anticipate the types of events and lessons entrepreneurs will face during their careers would be of extreme importance. Thus, the present study is important because it could provide greater insights that could lead to the anticipation of successes and failures, and allow future entrepreneurs to prepare for such experiences to make informed choices of their own.

Second, there are different types of entrepreneurs that differ in terms of their performance. Perhaps, understanding how different entrepreneurs learn from successes and failures that they experience can help explain some of the performance differences. In this thesis, I will distinguish between user-entrepreneurs and non-user entrepreneurs. User-entrepreneurs are considered to be those who start businesses around a product or a service that they originally develop for personal or job-related use, and not for sale to third parties (Shah & Tripsas, 2007; Oliveira & Von Hippel, 2011). Recent empirical evidence suggests that user entrepreneurs may outperform other entrepreneurs on important parameters such as human capital, revenue generation, and the longevity of their businesses (Shah, Smith, & Reedy, 2011). Thus, the present study is important because it can help shed light on career differences in how user versus non-user entrepreneurs experience successes and failures and what they learn from these experiences.

In the sections that follow, I will first review the literature on learning from experience which sheds light on the specificities of learning from success versus failure. Next, I will review the literature on autobiographical memory, especially in view of the techniques used in the research on autobiographical memory as I will use similar techniques to tap into experiences of entrepreneurial success and failure. I formulate my research questions and provide a detailed description of my methods in the subsequent

sections. Finally, I present my results and discuss all research findings in the section
General Discussion.

Literature Review

Learning from experience

The literature on learning from experience shows that important differences exist in how people learn from experiences of success and failure.

First, individuals seem to attribute successes and failures to very different causes. In a recent study, Moen and Skaalvik (2011) conducted an experiment among top executives which concluded that success is more likely attributed to strategy, effort and ability, as opposed to chance. As for failures, the authors found that failures too are often attributed to strategy, however they are a lot less likely to be linked to ability. The study found that executives tend to take credit for achievement by attributing achievement to factors under their control. On the other hand, when facing setbacks, executives tend to self-justify, attributing failure to external factors or to lack of effort on the part of their subordinates. However, when failures are attributed to external factors, the probability of further success may decrease (Moen & Skaalvik, 2011). In fact, additional evidence shows that future growth of projects can be maximized if the external environment is not considered to be the cause of setback (Yamakawa, Peng, & Deeds, 2010). In this sense, understanding what the main internal factors that led to failure are can offer more precise insights on how to have higher chances of succeeding in the future (Yamakawa et al., 2010).

At the same time, Ellis and Davidi (2005) show that while failures catalyze epistemic processes such as hypothesis generation and information acquisition, successes tend to limit such processes. Based on a conducted experiment, the authors found that people tend to focus more on finding the reasons for failure than for successes. Moreover,

the findings of this study corroborated previous results which showed that people focus on searching for explanation-relevant information when unanticipated events occur (Hastie, 1984; Wong & Weiner, 1981). Given the prevalence of optimism among entrepreneurs (Puri & Robinson, 2006), success is more likely to be anticipated, whereas failures are more likely to be unanticipated. Ellis and Davidi (2005) find that people have more complex mental plans to explain failure, with longer causal paths and explanations, compared to how they reason about successes. Gino and Pisano (2011) point out that one of the difficulties of learning from success is exactly this so-called “failure-to-ask-why” syndrome, following the experiences of success.

In the specific case of entrepreneurs, experiencing events of success and failure can have consequences of considerable magnitude to both the entrepreneur and the community in which he or she operates. As an example, a study conducted in 1995 in the USA showed that half of the projects in the area of information systems failed, with total costs of these failures reaching \$140 billion (Keil & Robey, 1999). Nevertheless, entrepreneurship researchers argue that project failures provide precious opportunities to learn from experience and improve in the future (Hammad, 2003; McGrath, 1999). According to Minniti and Bygrave (2001), by learning from past experience, entrepreneurs may even increase their probabilities of reaching success in subsequent business projects. This idea of learning from failure is also shared by Timmons (1994), who argues that in order to be successful an entrepreneur has to fail first. The author also refers to the pattern which shows that when the first business endeavor fails, the entrepreneur tends to later launch a very successful company .

Entrepreneurship researchers also discuss emotional reactions to events of success and failure, and how emotional reactions may affect what can be learned from these experiences. According to Shepherd and Cardon (2008), individuals are better prepared to learn from negative emotional reactions to failures if they are able to show self-compassion in the form of self-kindness, common humanity and mindfulness. Additionally, Shepherd (2003) argues that the emotional response to the loss of own business may interfere with further experiences. In order to minimize the negative impact of the emotional reaction, Shepherd (2003) argues that “entrepreneurs should balance between a loss-orientation process and a restoration-orientation process” (p.275).

Emotional reactions to past experience and their consequences are also discussed by Ucbasaran, Westhead and Wright (2011). These authors analyze the concept of overoptimism, which is defined as “the tendency to believe that one is more likely than others to experience positive events and less likely to experience negative ones” (Ucbasaran, Westhead, & Wright, 2011, p.1). The authors support the idea that this tendency can be extremely positive when bringing the projects to the start-up level. However excess of confidence can also lead to business negligence. In order to minimize this tendency among entrepreneurs to feel “unbeatable”, failures may be useful. Facing failures can mitigate this surplus of optimism and increase the odds of future success (Ucbasaran, Westhead, & Wright, 2011).

Despite of all the literature reviewed, to our knowledge, no previous research examined the differences in how entrepreneurs learn from success and failure. Or even, what successes and failures are relevant to entrepreneurial learning, other than project successes and failures.

Autobiographical Memory

According to Conway & Rubin (1993), autobiographical memory is the memory for the events of one's life. It constitutes a major crossroads in human cognition where considerations relating to the self, emotion, goals, and personal meanings all intersect (Conway & Rubin, 1993). Autobiographical memory continuously contributes to the definition of character and identity, and contains vivid recollections of important events from the past. According to Pillemer (2001), memories of past events represent a source of inspiration and direction when deciding and choosing future actions and paths. Additionally, life lessons can be gained from memories (Pillemer, 1992, 1998).

Studies conducted on autobiographical memory also show that people are able to recall the time of occurrence of different life events. For example, Rubin and Berntsen (2003), asked respondents of various ages to date events of their lives that were the most important, the happiest, the saddest and the most traumatic. As a result, interesting findings emerge regarding the pattern of remembered events over time. First of all, the phenomenon of the reminiscence bump should be highlighted. The reminiscence bump is the tendency to recall more autobiographical memories from adolescence and early adulthood than from adjacent lifetime periods (Janssen, Rubin, & Conway, 2012). This bump is explained as due to the fact that it is during this specific time that normally one has the most decisive moments of life. In fact, these are the years when the individual is required to develop multiple tasks that demand making choices, either related to education, career path definition or forming family (Arnett, 2000). Interestingly, the studies conducted by Berntsen and Rubin (2002, 2003) show the existence of a reminiscence bump for positive but not negative events/memories. According to the research of these authors, there was an

distinct bump in the 20s for the most relevant and happiest memories of individuals. On the other hand, the memories that reported sad or traumatic events were more frequent in later stages of life (Bertsen & Rubin, 2002, 2003). Additional differences between the features of positive and negative memories were provided in various studies. According to Levine and Bluck (2004), recalling negative memories indicates dangers and the need for immediate reaction whereas happiness increases the flexibility and constructiveness of information processing. The study conducted by the authors showed that individuals tended to make more commission errors when recalling positive events (false memories) than when recalling negative events. Moreover, individuals tended to make more errors of omission when recalling negative events. Another curious finding emerges from the work by St. Jacques and Levine (2007). According to these authors, when recalling past events, younger adults tended to provide more episodic details, while older adults recalled more general (semantic) features of events. However, the authors also show that the interviewed individuals of all ages recalled emotional memories in more detail than neutral ones (St. Jacques & Levine, 2007).

Considering the objective of the present thesis, I next review the techniques used by autobiographical memory researchers to collect data regarding specific life events, their timing and significance.

I analyzed the methods used in twenty-five different studies (Appendix A). In order to obtain the data and information of these studies, I undertook a literature search on the CSA PsycArticles database. This literature search was run by typing in the search engine a combination of different keywords, such as “autobiographical memory”, “event”, “lifetime”, or “lessons learned”.

The number of studies provided by each different individual search reached more than one thousand items. To restrict the pool of search results, I used different words together (e.g.: “autobiographical memory” and “recalling”). This decreased search results to less than two hundred studies. My next step was to sort the studies by the relevance rank. Additionally, I selected only studies of autobiographical memory and its importance for the individuals’ lives and discarded all studies which were related to clinical/medical research.

The first fact that should be highlighted is the variance in terms of sample size. For example, while Rathbone, Moulin, & Conway (2008) studied 16 individuals, Rubin and Bertsen (2003) interviewed 1,307 people. Also, diverse populations are studied, from children to adults (Levine, Liwag & Stein, 1999).

In terms of tasks posed to study participants, two types of tasks were used:

- Recall of specific memories/events according to a list of cue-words (Galton Tests – Galton, 1879), cue sentences, or, researcher-generated checklists;
- Recall of specific memories/events without cue-words/sentences/checklists

These tasks allow to achieve a representative sample of the multitude of diverse autobiographical events that any individual is expected to hold in his or her long-term memory (Howes & Katz, 1992).

Regardless of the usage or not of cueing, the tasks were used to elicit both descriptions and the timing of events in autobiographical memory. These events varied from events respondents chose to describe at their own discretion, to specific events linked to a type of category (e.g., emotions), or to importance in the individuals’ lives. As an

example, Berntsen and Bohn (2010) asked their respondents to recall autobiographical events, according to a list of cue words (“bed”, “bread”, “book”, “car”, “chair”, “dog”, “glass”, “house”, “kitchen”, and “telephone”).

Additional tasks included the production of personal or prototypical life scripts (typical sequences of events in one’s life), the indication of turning points across the lifespan, and the indication of aspects of life which most changed since a specific period in time.

In terms of timing, individuals were either required to state the date of event occurrence or to report events occurring in a specific time frame set by the researchers.

Depending on the objective of the studies, individuals were asked to provide self-report assessments of the events recalled. In most of the cases reported in Appendix A, such assessments focused on the event’s vividness, valence, and relevance to the individual’s identity.

Considering the data analysis, all studies provided both tables and graphs which presented the obtained results. In the majority of the cases, either a table or graph expressed the frequency of events/memories by period of time. In addition, some studies classified the recalled memories into different categories and presented the frequency of memories per type of category.

As for data collection, the majority of studies were conducted through questionnaires and individual interviews. The methods used in the remaining studies included group recall tasks and keeping diaries. The group recall task consisted of recalling specific personal events from the past and discussing them in a group. As for keeping

diaries, certain studies requested that participants keep a diary during a specific time period and record daily events.

In what concerns the accuracy of recall, only three studies undertook memory checks. For example, Howes and Katz (1992) asked the spouses of study participants to confirm both the occurrence of the events and each event's date. Similarly, Levine, Liwag and Stein (1999) asked parents to recall specific memories which included their children. Then, children were asked to confirm the veracity of the parents' statements and memories. In one of the diary studies, participants were required to confirm the veracity of their own reported events 7 months after the recall task.

Research Questions

The purpose of this Thesis is to tap the autobiographical memory of entrepreneurs as a resource for learning about successes and failures of relevance to their careers. I intend to answer the following research questions:

1. What successes and failures do entrepreneurs recall as occurring throughout their careers? How are most memorable experiences of success and failure distributed across the entrepreneur's career span?
2. How much do entrepreneurs learn from experiences of success and failure?

The literature review on learning from experience suggests two specific research hypotheses that can be tested as part of this research question.

- Hypothesis 1: Entrepreneurs will tend to attribute experiences of success to internal factors, but they will tend to attribute experiences of failure to external factors.

Because internal attributions are associated with the “failure-to-ask-why” syndrome, as discussed by Gino and Pisano (2011), it is likely that entrepreneurs therefore learn less from success than from failure. Hence, my second hypothesis:

- Hypothesis 2: Entrepreneurs will learn less from experiences of success versus experiences of failure.
3. How are user-entrepreneurs different from non-user entrepreneurs in terms of experiences of success and failure, their timing and how much is learned from experiences of success and failure?

Previous research on user-entrepreneurs (Shah, Smith, & Reedy, 2011) suggests that user-entrepreneurs may learn more from both successes and failures which ultimately explains their superior performance compared to non-user entrepreneurs.

Thus, I formulate two additional specific hypotheses:

- Hypothesis 3. User-entrepreneurs learn more from experiences of success than non-user entrepreneurs.
- Hypothesis 4. User-entrepreneurs learn more from experiences of failure than non-user entrepreneurs.

Methods

Participants and procedure

144 entrepreneurs were invited to participate in an online survey regarding their careers. 80% of the entrepreneurs responded to the invitation. 29% completed the survey (N = 42).

88% of the final sample were male, with an average age of 44. 2% had only completed high school, 38% had university degree at a minimum, and the remaining 60% had completed graduate studies. The average duration of the entrepreneurial career was 20 years, with 5 years of pre-entrepreneurship experience in the same industry.

Insert Table 1 and 2 here

Participants completed an online survey that took approximately 25 minutes of their time. Anonymity and confidentiality of the respondents' data was guaranteed. No company names or names of individuals needed to be revealed in the answers. The participants were asked to refer to these as suppliers, customers, collaborators, colleagues, friends and so on, without specifying the names. Also, the participants used a pseudonym to ensure that their names could not be associated to any specific response on the questionnaire. The participants were told that their data would inform the analysis as part of a broader sample and would be used for research purposes exclusively.

The survey had 4 major sections:

- About the entrepreneur and features of his or her career (e.g., demographics, socio-economic variables, number of companies, bankruptcies, career stages, etc.);
- About the entrepreneur's successes and how much was learned from success;
- About the entrepreneur's failures and how much was learned from failures;
- About the first company experience and lessons learned from that experience.

Measures

External environment at career start. Entrepreneurs were asked to assess conditions of the external environment at the time when their first company began operations. They expressed their degree of agreement with each of the items on a 1–5 scale (1 = strongly disagree; 5 = strongly agree). The 15 Items were adapted from the Environmental Turbulence Scale (Green, Covin, & Slevin, 2008) and included “Customer loyalty was low in my industry” and “The failure rate of firms in my industry was high”, among others (Chronbach’s alpha = .67).

Initial knowledge. Entrepreneurs were asked to assess their knowledge at the time when their first company began operations. They expressed their degree of agreement with each of the items on a 1–5 scale (1 = strongly disagree; 5 = strongly agree). The 12 Items included “Product/Service”, “Strategy”, “Marketing”, “Logistics”, “Fund Raising”, “Cash Management”, “Finance”, “People and Relationships”, “Human Resource Management”, “Networking”, “Business Environment”, and “Other”. Four Indices were created: the Overall Knowledge Index (12 items, Chronbach’s alpha = .87), the Management Index (including the items “Product/Service”, “Strategy”, “Marketing”, and “Logistics”, Chronbach’s alpha = .65), the Finance Index (“Finance”, “Fund Raising”, and “Cash

Management”, Chronbach’s alpha = .86), and the Relationships Index (“People and Relationships”, “Human Resource Management”, and “Networking”, Chronbah’s alpha = .76).

Successes and failures. Entrepreneurs were asked to recall one success they experienced throughout their career and one failure that they experienced. A subsample of 13 entrepreneurs was asked to describe successes and failures in their own words. All the respondents had a series of drop-down menus that they used to describe various features of the experiences of success and failure that they recalled, as described below.

Timing. Entrepreneurs were asked to situate in time an event of success and failure by indicating the year when the event happened. Event timing was computed as the difference in the year of reported success or failure and the year of the start of the career.

Attributions. Entrepreneurs were asked whether experienced successes and failures were due to “managerial skill”, “managerial effort”, “managerial ability”, “luck”, “external environment” or, other factors. Internal attributions were operationalized as a dummy variable taking the value of “1” when entrepreneurs chose any of the first three items, and “0” otherwise.

External environment at time of event. Entrepreneurs were asked to characterize the external environment at the time of the occurrence of the events of success and failure using a 2-item scale. The first item required the entrepreneurs to express their degree of agreement with how favorable the environment was, on a 1-5 scale (1 = Extremely Unfavorable; 5 = Very Favorable). The second item required the

entrepreneurs to express their degree of agreement with how risky the environment was, on a 1-5 scale (1 = Extremely Risky; 5 = Certain).

Learning from success and failure. Several measures were used to gauge learning from success and failure.

Lessons learnt. The entrepreneurs were asked to state if the reported success and failures provided an important lesson (Yes = 1, and No = 0).

Importance of lessons learnt. Entrepreneurs were asked to answer to what extent they agreed that the events of success and failure were turning points of their careers, on a 1-5 scale (1 = Not at all; 5 = Absolutely).

Knowledge acquired from success and failure. Entrepreneurs were asked to answer to what extent they agreed with a list of items regarding how their knowledge improved based on the recalled events of success and failure, on a 1-5 scale (1 = strongly disagree; 5 = strongly agree).

The 12 Items included “Product/Service”, “Strategy”, “Marketing”, “Logistics”, “Fund Raising”, “Cash Management”, “Finance”, “People and Relationships”, “Human Resource Management”, “Networking”, “Business Environment”, and “Other”. Four Indices were created: the Overall Knowledge Index (12 items, Chronbach’s alpha for success events = .86, and Chronbach’s alpha for failure events = .94), the Management Index (including the items “Product/Service”, “Strategy”, “Marketing”, and “Logistics”, Chronbach’s alpha for success events = .75 and Chronbach’s alpha for failure events = .86), the Finance Index (“Finance”, “Fund Raising”, and “Cash Management”, Chronbach’s alpha for success events =

.83, and Chronbach's alpha for failure events = .92), and the Relationships Index ("People and Relationships", "Human Resource Management", and "Networking", Chronbah's alpha for success events = .80, and Chronbach's alpha for failure events = .89).

Career stages. Entrepreneurs were required to partition their careers into 3 stages: early, middle and late, and indicate the duration of each stage. They had to limit themselves to stages that apply to their current situation and omit filling out information for stages they have not yet reached.

Companies founded. Entrepreneurs were asked how many companies they founded throughout their career.

Foundation time. Entrepreneurs had to specify when they founded each company. Foundation time was computed as the difference between the year stated for company foundation and the year when the career started (the year of the foundation of the first company).

Bankruptcy. Entrepreneurs were asked to report the occurrence (or not) in time of bankruptcy of their companies.

Type of industry. Entrepreneurs were asked to choose the type of industry that each of their companies operated in, according to a drop-down list of industries. The list of industries included "Business and Financial Services", "Healthcare", "Production", among others.

Anticipated years of professional activity. Entrepreneurs were asked for how many years they anticipated to remain professionally active.

Anticipated number of companies to found. Entrepreneurs were asked how many companies they anticipated to found or co-found from the present moment until the end of their career.

Lessons learnt from the operations of first company. Entrepreneurs were asked to identify up to 3 events in which they have learnt something important for their career from the time of operations of their first company.

Event type. Entrepreneurs were asked to state if the reported event was perceived as a success, a failure, or ambiguous.

Type of knowledge acquired. Entrepreneurs were asked to define the lesson learnt according to a list of items. The 9 items included “Product/Service”, “People/Relationships”, “Finance/Accounting”, “Fund Raising”, “Strategy”, “Marketing”, “Logistics”, “Business Environment”, and “Other”.

Availability of a mentor’s advice in the first company creation. Entrepreneurs were asked if they had a mentor who advised them when creating their first company.

Development of a business plan for the first company. Entrepreneurs were asked if they developed a business plan for their first company.

Past temporal orientation. Past temporal orientation was measured to control for potential differences in how entrepreneurs remember past successes and failures or what is learned from these experiences. This was measured using the 4-item past focus subscale from the Temporal Focus Scale (Shipp, Edwards, & Schurer Lambert, 2009). Sample items include “I replay memories of the past in my mind” ($\alpha = .91$).

User status. Entrepreneurs were asked for the description that best applied to the products/services offered by their founded companies according to a list of items. The list of items included “originally invented/modified for personal use”, “originally invented/modified for use in a previous job/business”, “originally invented/modified for personal and job-related use”, “originally invented/modified for sale to someone else”, “previously available in the national market”, “previously available in the national market” and “other”. User status was operationalized as a dummy variable taking the value of “1” when entrepreneurs chose any of the first three items for at least one of their companies, and “0” otherwise.

Age, gender, and years of pre-entrepreneurial experience, were measured via self-report.

Results

Overall career characteristics

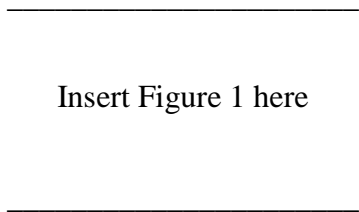
Entrepreneurs who participated in the survey created an average 3 companies throughout their entrepreneurial life. A variety of industries was represented, including “Computer and Mathematical” (21%), “Business and Financial Activities”(13%), “Healthcare” (8%), “Food Preparation and Service Related” (7%), and “Production” (7%). It took 7 years on average from the creation of the first company to the creation of the second company (N =33), 5 years from the creation of second company to the creation of the third company (N = 26), 4 years from the creation of the third company to the creation of the fourth company (N = 15), and 5 years from the creation of the fourth company to the creation of the fifth company (N = 6).

56% of entrepreneurs had a mentor who helped them establish their first company. For the latter, 50% of user-entrepreneurs had a mentor, and 65% of non-user entrepreneurs did so. 50% of all entrepreneurs had a business plan for their first company. For the latter, 46% of user entrepreneurs had a business plan, and 56% of non-user entrepreneurs did so. Moreover, 79% of the entrepreneurs have mentored another entrepreneur, taught or given advice on entrepreneurship (72% of non-user entrepreneurs, and 83% of user entrepreneurs).

In terms of self-report career stage, 5 entrepreneurs reported to currently experience the early stage of their career, 14 reported to currently experience the middle stage of their career and 23 reported to be in the late stage of their career. On average, the early career stage was estimated to last for 6 years, the middle career stage was estimated to last for 8

years, and entrepreneurs were currently into their 6th year of the late career stage at the time of the survey. Entrepreneurs anticipated to remain active for 19 years more on average, in which they expected to be able to create 4 new companies. Of all founded companies, 57% were founded during what the entrepreneurs defined as their early career stage, 25% were founded during what the entrepreneurs defined as their middle career stage, and 18% during their late career stage.

Of all founded companies, only 7 were reported to have gone bankrupt. Of this number, 2 were first companies, 2 were second companies, and 3 were third companies. Figure 1 presents the distribution of bankruptcies across the career span of entrepreneurs in the sample. It should be highlighted that most companies went bankrupt in years 3 and 4 of the entrepreneur's career, but this was not a statistically significant difference in bankruptcies, compared to other years,



Successes and failures

Types of events

Entrepreneurs reported one success and one failure experience from their careers. For success, some examples of experiences reported included the discovery of the personal mission in the first founded company, the improvement of the technical features of a specific solution or the establishment of relations with new customers. For example,

respondent no. 11 writes: “In our pharmaceutical logistics company we anticipated the trend towards outsourcing by the international companies active in our market and we were able to have a leading position” as the recalled success; and respondent no. 34 stated: “When I got a call from Sir Richard Branson, telling me that he was going to give us 50k Eur, because he loved our venture and he really wanted to help us with the kick off and staying around for further rounds and some new milestones. I was 19 years old and I was in my 2nd year of University”.

For failures, the examples provided were also varied but often included more detailed explanations. For instance, one entrepreneur recalls (respondent no. 12): “I discovered that a partner and one of the founders of my third company had taken some money for himself (more than half a million € in 1985 which is a lot!) leaving us with lots of debts”. Another entrepreneur (respondent no. 20) writes: “Difficulty in financing the company when the cash was already out. External investors backing off due to International financial crisis. All my team of workers was severely affected but the management team was the most affected, being myself for 6 months without salary”.

As these examples show, experiences of success and failure that entrepreneurs chose to describe were not limited to project/company overall success or failure, and included a variety of intermittent events.

Timing

Of all recalled successes, 14% was reported to occur during what the entrepreneurs defined as their early career stage, 48 % was reported to occur during what the entrepreneurs defined as their middle career stage, and 38% during their late career stage.

Of all recalled failures, 24% was reported to occur during what the entrepreneurs defined as their early career stage, 48 % was reported to occur during what the entrepreneurs defined as their middle career stage, and 29% during their late career stage.

Despite of the evidence that more failures than successes tended to occur in the early stage of career, no significant statistical difference was found when running the paired t-test ($t(41) = -1.43, ns$). However, statistically significant difference in the proportion of successes recalled from middle stage and the proportion from early stage ($z = 3.37, p < .05$).

When examining the absolute years of career, on average successes were reported to occur on the 7th year of the entrepreneurial career. Moreover, 50% of successes were reported to have occurred before the second year of career. On average failures were reported to occur on the 10th year of the entrepreneurial career. Moreover, approximately 50% of failures were reported to have occurred before the sixth year of career. Thus, failures were remembered to have occurred later than successes in our sample, $t(41) = -2.4, p < .05$.

Insert Figure 2 and 3 here

On average, experiences of failure were remembered as having occurred at a time when the external environment was more favorable than in the case of experiences of success, ($M = 3.96, SD = .95$, versus $M = 3.3, SD = 1.03$), $t(41) = 2.91, p < .05$.

Finally, successes reported were considered to mark a turning point in the entrepreneur's career ($M = 3.9$, $SD = 1.3$), and more so than did experiences of failure ($M = 3$, $SD = 1.46$). Thus, recalled successes were considered to be more relevant for the evolution of their careers than the failures, $t(41) = 3.28$, $p < .05$.

Learning from success and failure

Attributions

Consistent with Hypothesis 1, successes were more likely attributed to internal factors (managerial ability, managerial effort or managerial skill). In fact, 81% of all entrepreneurs attributed the reported successes to internal factors, whereas only 31% attributed failures to internal factors. This difference in the proportion of entrepreneurs who attributed successes versus failures to internal factors was statistically significant, $z=4.62$, $p < .05$.

Importance of lessons learnt

According to the results obtained, 93% of entrepreneurs reported to have learnt an important lesson from their success event. 81% of entrepreneurs reported an important lesson from their failure event. When running a paired sample t-test, significant differences were found on more important lessons being reported from successes than from failures ($t(41) = 2.35$, $p < .05$).

Knowledge acquired

In order to verify if there was significant statistical difference between the average acquisition of knowledge from success and failure, paired-sample t-tests were run on all learning indices. The conducted tests allowed reaching the following conclusions:

- Overall learning from success ($M = 3.9$; $SD = .66$) was reported to be significantly higher than Overall learning from failure ($M = 3.43$; $SD = 1.01$), $t(41) = 3$, $p < .05$.
- Learning on people-related issues from success ($M = 4.1$; $SD = .78$) was reported to be significantly higher than learning on people-related issues from failure ($M = 3.7$; $SD = 1.11$), $t(41) = 2.2$, $p < .05$.
- Learning on management-related issues from success ($M = 3.94$; $SD = .74$) was reported to be significantly higher than learning on management-related issues from failure ($M = 3.3$; $SD = 1.09$), $t(41) = 2.2$, $p < .05$.
- On average, learning on financial-related issues from success ($M = 3.67$; $SD = .97$) and learning on financial-related issues from failure ($M = 3.26$; $SD = 1.22$) did not differ significantly, $t(41) = 1.87$, *ns*.

Thus, entrepreneurs reported to have learnt more from success than from failure. When analyzing the different indices individually, it is interesting to point out that the one presenting a sharper difference is related to management issues. Moreover, knowledge on people-related issues was reported to be the one which mostly improved after both success and failure.

In addition to tests of differences in means for knowledge acquisition following successes and failures, I conducted regression analysis to examine learning from the events of success and failure controlling for various factors that may have affected learning. The key independent variable in the regression analysis was the nature of the event – SUC - (success versus failure). I controlled for the entrepreneur’s initial knowledge – IK - (entrepreneurs with greater initial knowledge may have been better prepared to learn from any event), external environment at career start – EES - (entrepreneurs who started in difficult times may be more vigilant and learn better from any event), and external environment at time of event - EEE (entrepreneurs who experienced failure in prosperous times may have learned less from it than those who experienced failure in difficult times). I also controlled for event timing - ET (entrepreneurs may have remembered events farther away in the past because they learnt more from those events), past temporal orientation - PTO (entrepreneurs who tend to think about past events may have reported learning more from both successes and failures), gender – G - and age – A - of the respondent. Finally, interaction terms were created between the dummy variable taking the value of “1” if the event was a success and “0” if the event was failure, and the measures of initial knowledge (IK*SUC), external environment at career start (EES*SUC) and external environment at the time of the event (EEE*SUC). Thus, effects of initial knowledge and different types of external environment were allowed to differ for learning from success versus learning from failure.

Regression Equation: $Y = \beta_0 + \beta_1 * \text{Success} + \beta_2 * \text{Initial Knowledge at career start} + \beta_3 * \text{External Environment at career start} + \beta_4 * \text{External Environment at event time} + \beta_5 * \text{Event timing} + \beta_6 * \text{Past temporal orientation} + \beta_7 * \text{Gender} + \beta_8 * \text{Age} + \beta_9 * \text{Initial}$

$$\text{Knowledge at career start} * \text{Success} + \beta_{10} * \text{External Environment at career start} * \text{Success} + \beta_{11} * \text{External Environment at event time} * \text{Success} + \varepsilon \quad (1)$$

I conducted regression analysis with clustered errors because every individual in the sample provided both an assessment of learning from success and related measures and an assessment of learning from failure and related measures, which may have made these assessments and measures non-independent (Cameron & Trivedi, 2009). Table 3, column 1, presents the results of the regression analysis.

Insert Table 3 here

As Table 3, column 1, shows, a number of factors mattered for how much entrepreneurs learned from experiences of success and failure. Most importantly and contrary to my previous analysis of differences in means for knowledge acquired from successes and failures, entrepreneurs learned somewhat more from failures than from successes ($\beta = -1.52, p < .10$). Also, whether the experience was a success or a failure mattered for the relationship between the external environment at the time of the experience and how much was learned from it. In particular, entrepreneurs learned less from failure the more favorable was the external environment at the time of the event ($\beta = -.25, p < .05$). However, no such relationship was observed for learning from success: learning from success remained largely unaffected by the favorability of the external environment at the time of success ($\beta = -.25 + .33 = .08$).

It is important to note that the initial knowledge of entrepreneurs contributed positively to learning from experience, and the effect of initial knowledge on learning did not differ depending on whether the experience was that of success or failure. External environment at the start of the career, on the other hand, did not have a significant effect on learning.

Finally, event timing and past temporal orientation of entrepreneurs affected entrepreneurs' reports of how much they learned from experiences of success and failure. In particular, entrepreneurs reported learning more from events that they experienced earlier in their careers. Also, greater levels of past temporal orientation were related positively to how much entrepreneurs reported having learned from experiences. This latter result may suggest that some ability to retrospect is necessary for learning. However, it may also be that the effect of event timing and temporal orientation is significant because of our use of entrepreneurs' autobiographical memory as a resource for examining how much they learned from experiences of success and failure. For example, it may simply be that events farther away in the past were memorable precisely because entrepreneurs learned something important from them, whereas events recalled from the near past were easier to remember irrespective of how much was learnt from them.

Knowledge acquired from first company experience

The data on lessons learned from the operations of the entrepreneur's first company is additional information on learning from success versus failure in the context of a specific company experience.

On average, entrepreneurs reported 1.35 events that led them to learn something important for their overall careers. 69% of all events reported seemed to be experiences of success when they originally occurred, 17% seemed to be experiences of failure, and the rest were events that were not easily classifiable as either success or failure (ambiguous). This seems to reflect one more time the belief of entrepreneurs that they learn more from success than from failure.

Because entrepreneurs were asked to report at least one lesson, I will next report the analysis of first lessons reported by all entrepreneurs ($N = 42$). Consistent with the overall findings, 70% of first lessons reported arose from what seemed to be an experience of success when it originally occurred, 13% arose from what seemed to be an experience of failure, and all the other lessons resulted from experiences that were ambiguous.

Figure 4 reports the structure of all first lessons learned from success (left panel) and failure (right panel) in terms of the following basic categories: people and relationships, general management (subsuming product/service, marketing, strategy, and logistics), finance (subsuming fund raising and finance/accounting), and other. As Figure 4 shows, successes were mainly associated with lessons about general management (46%), whereas no failures were associated with such lessons, $z = 1.95$, *ns*. On the other hand, the most frequent lessons from the experiences of failure had to do with people and relationships (60% of all lessons from failure), which was greater than the proportion of such lessons learned from the experiences of success (21%), $z = -1.82$, *ns*.

Insert Figure 4 here

User versus non-user entrepreneurs

Overall career characteristics

User-entrepreneurs were defined as those entrepreneurs who at least once in their career created a business around a product or a service that they originally developed for personal or job-related uses rather than sale to third parties (Shah & Tripsas, 2007; Oliveira & Von Hippel, 2011). Of the 42 entrepreneurs, 24 were classified as user-entrepreneurs, and 18 were classified as non-user entrepreneurs. Figure 5 presents the industry structure of all companies the creation of which for the first time placed a certain entrepreneur among user-entrepreneurs (the first company in the entrepreneur's career which was organized around a product or a service that the entrepreneur originally developed for personal or job-related use). On average, the first company which placed the entrepreneurs among user entrepreneurs was founded in year 6 of their career.

Insert Figure 5 here

When comparing the two types of entrepreneurs, the mean career length was similar. User-entrepreneurs had on average 20 years of career, and non-user entrepreneurs had 19 years of career. The subsample of user-entrepreneurs reported to have founded a total number of 72 companies, while non-user entrepreneurs reported in total 50 founded companies. When comparing company bankruptcies, user-entrepreneurs reported a total number of 5 companies to go bankrupt. Only 2 companies were reported to have gone bankrupt in the case of non-user entrepreneurs. In this sense, the bankruptcy rates for user entrepreneurs (7%) were not significantly different from the bankruptcy rates for non-user entrepreneurs (4%), $t(49) = 1.77, ns$.

Considering all user entrepreneurship companies (rather than who I classify as user entrepreneur), only 3% have gone bankrupt. Moreover, 6% of non-user entrepreneurship companies have gone bankrupt. When comparing these two results, no significant proportion differences were found, $z = -.61, ns$.

Considering career stages, 2 user entrepreneurs and 3 non-user entrepreneurs reported to be currently experiencing the early stage of career. 10 user entrepreneurs and 4 non-user entrepreneurs reported to be currently experiencing the middle stage of career. The late career stage was reported to be experienced by 12 user entrepreneurs and 11 non-user entrepreneurs.

Successes and failures

13% of user entrepreneurs reported the success to occur in the early stage of career, and 17% of non-user entrepreneurs did so, $z = -.51, ns$. 42% of user entrepreneurs reported the success to occur in the middle stage, and 56% of non-user entrepreneurs did so, $z = -$

1.28, *ns*. 46% of user entrepreneurs reported the success to occur in the late stage, and 28% of non-user entrepreneurs did so, $z = 1.7$, *ns*.

29% user entrepreneurs reported the failure event to occur in the early stage of career, and 17% of non-user entrepreneurs did so, $z = 1.31$, *ns*. 38% of user entrepreneurs reported the failure to occur in the middle stage, and 61% of non-user entrepreneurs did so, $z = -2.11$, $p < .05$. 33% of user entrepreneurs reported the failure to occur in the late stage, and 22% of non-user entrepreneurs did so, $z = 1.13$, *ns*).

In absolute years, on average, user-entrepreneurs reported their success to occur on the fourth year of career. Non-user entrepreneurs reported this event to happen on average on the eleventh year of career. When running the t-test, significant difference was found between the average timing of success, $t(40) = 2.04$, $p < .05$. In this sense, user-entrepreneurs tended to report their successes earlier than non-user entrepreneurs. As for failures, user entrepreneurs reported on average this event to occur on the second year of career. Non-user entrepreneurs reported the failures to happen on average on the fourth year of career. When running the t-test, no significant difference was found between the average failure year, $t(40) = .94$, *ns*.

On average, experiences of success have occurred at a time when the external environment was positive, according to user and non-user entrepreneurs. Mean rating of external conditions was 3.22 for non-user entrepreneurs ($SD = 1.1$) and 3.35 for user entrepreneurs ($SD = 1.03$), $t(41) = -.4$, *ns*. Experiences of failure occurred at a time when the external business environment was even more favorable ($M = 3.96$, $SD = .95$), $t(41) = 1.7$, *ns*. The external environment reported by non-user entrepreneurs at the time of the

events of success was significantly more favorable than for the events of failure, $t(17) = -3.78, p < .05$.

Finally, successes reported were considered to mark a turning point in the careers of user entrepreneurs ($M = 4, SD = 1.27$) and non-user entrepreneurs ($M = 3.72, SD = 1.36$), $t(41) = -.78, ns$. Failures were not considered equally important turning points by both user entrepreneurs ($M = 2.83, SD = 1.49$) and non-user entrepreneurs ($M = 3.28, SD = 1.4$), $t(41) = .98, ns$.

Learning from success and failure

The final target of analysis was to study the potential differences among user and non-user entrepreneurs on learning from success and failure.

Attributions

Successes were more likely attributed to internal factors (managerial ability, managerial effort or managerial skill) by both user entrepreneurs and non-user entrepreneurs. In fact, 83% of user entrepreneurs and 78% of non-user entrepreneurs attributed the reported successes to internal factors, $z = .41, ns$. Considering failures, only 29% of user entrepreneurs and 33% of non-user entrepreneurs attributed failures to internal factors, $z = -.28, ns$. Significant evidence was found in the proportion of user entrepreneurs who reported successes to internal factors being higher than the proportion of those who reported failures to internal factors, $z = 3.77, p < .05$.

Importance of lessons learnt

According to the results obtained, 94% of user entrepreneurs reported to have learnt an important lesson from their success event, and 92% of non-user entrepreneurs did so.

67% of user entrepreneurs reported an important lesson from their failure event, and 100% of non-user entrepreneurs did so. Significant differences were found on more important lessons being reported from failures by non-user entrepreneurs than by user-entrepreneurs, $t(41) = 2.93, p < .05$.

Knowledge acquired

I conducted regression analysis to examine how learning from the events of success and failure was affected by the nature of the event (success versus failure), controlling for all the factors described in the previous section, but now also considering the type of entrepreneur. In this case, interaction terms were created between the dummy variable taking the value of “1” for user entrepreneurs and “0” for non-user entrepreneurs – US -, and the measures of initial knowledge (US*IK), external environment at career start (US*EES), external environment at the time of the event (US*EEE), and the event type (US*SUC).

$$\text{Regression Equation: } Y = \beta_0 + \beta_1 * \text{Success} + \beta_2 * \text{Initial Knowledge at career start} + \beta_3 * \text{External Environment at career start} + \beta_4 * \text{External Environment at event time} + \beta_5 * \text{Event timing} + \beta_6 * \text{Past temporal orientation} + \beta_7 * \text{Gender} + \beta_8 * \text{Age} + \beta_9 * \text{Initial Knowledge at career start} * \text{Success} + \beta_{10} * \text{External Environment at career start} * \text{Success} + \beta_{11} * \text{External Environment at event time} * \text{Success} + \beta_{12} * \text{User status} + \beta_{13} * \text{User status} * \text{Initial Knowledge at career start} + \beta_{14} * \text{User status} * \text{External Environment at career start} + \beta_{15} * \text{User status} * \text{External Environment at event time} + \beta_{16} * \text{User status} * \text{Success} + \varepsilon \quad (2)$$

As table 3, column 2 shows, on average the user-entrepreneur status is associated with less learning from both experiences of success and failure ($\beta = -.3.7, p<.05$). However, user entrepreneurs are shown to report more learning the greater is their initial knowledge ($\beta = .64, p<.05$), whereas the same is not true of non-user entrepreneurs. In the case of non-user entrepreneurs, no significant relationship was found between initial knowledge and learning from experience.

Additionally, for non-user entrepreneurs, there is significant evidence that the better the external environment at career start ($\beta = -.32, p<.01$) and at the time of the event ($\beta = -.43, p<.05$), the less is learnt. For user entrepreneurs, this negative relation is suggested to be diminished, although the results are not statistically significant.

Knowledge acquired from first company experience

Comparing the number of lessons acquired from first company experience, both user and non-user entrepreneurs reported to have learnt on average one important lesson.

For user entrepreneurs, when considering the reported lesson, 68% of these events seemed to be an experience of success when it originally occurred, 18% arose from what seemed to be an experience of failure, and all the other lessons resulted from experiences that were ambiguous. For non-user entrepreneurs, a similar pattern to what is observed for user entrepreneurs was found, $z = -.4, ns$, for experiences of success, and $z = 1.87, ns$, for experiences of failure.

Considering the type of lesson, 44% of lessons reported by non-user entrepreneurs and 45% of lessons reported by user entrepreneurs referred to Management related issues. 28% of lessons reported by non-user entrepreneurs and 23% of lessons reported by user

entrepreneurs referred to People and Relationships issues. 22% of lessons reported by non-user entrepreneurs and 23% of lessons reported by user entrepreneurs referred to Finance related issues. 6% of lessons reported by non-user entrepreneurs and 9% of lessons reported by user entrepreneurs referred to Business Environment issues.

General Discussion

Summary

In this thesis I studied the autobiographical memories of entrepreneurs in order to learn how experiences of success and failure affect entrepreneurial learning. The sample of entrepreneurs studied included experienced entrepreneurs, the vast majority of whom is active in mentoring and other types of advising on entrepreneurship.

It should be highlighted that several interesting findings emerged from studying the memories recalled by entrepreneurs. First, based on the descriptions reported by the entrepreneurs, the recalled experiences of success and failure were not limited to project/company overall performance, but included a variety of intermittent events, such as winning a prize or receiving support from an authority figure in the world of entrepreneurship.

Second, considering timing and in terms of absolute years of career, memories of success tended to refer to earlier portions of the career than did memories of failures. Despite of this finding, when analyzing the timing of reported successes and failures in terms of career stages that entrepreneurs defined for themselves, no significant evidence was found in terms of the timing of recalled successes and failures. For both successes and failures, most events were reported to occur in the middle career stage, showing no predominance of early or late memories. Furthermore, we found that entrepreneurs tended to recall experiences of failure as occurring in an external environment that was more favorable than was the case for the recalled experiences of success. Perhaps, this suggests that failures are more memorable when they occur in more favorable times.

Third, I examined how much entrepreneurs learned from experience and compared the findings to what is known from the existing literature on learning from experience. As the literature suggests and as predicted in Hypothesis 1, entrepreneurs tended to attribute their successes to internal factors, but tended to attribute their failures to external factors. As suggested by Gino and Pisano ((2011) such attributions pattern may hinder learning from experience because once successes are taken to occur due to managerial ability, effort or skill, the individuals spend less time examining alternative causes for success. On the other hand, when failing, entrepreneurs tend to seek more explanations in order to understand the reasons for failing, increasing potential learning from these events.

Interestingly, when I compared how much entrepreneurs reported having learnt from the experiences reported, they seemed to indicate that they learnt more from successes than from failures, and that the lessons derived from successes were more important than lessons derived from failures.

However, in more thorough analysis (by means of regression analysis), in which I examined learning from experience both in terms of the role of success versus failure and other factors that could affect learning, I found that entrepreneurs learnt less from success. A key control variable leading to this result in the regression may have been the external environment at event time. In fact, it is the external environment at the time of the event that affected learning negatively: the more favorable was the environment, the less was learned from a given event. Moreover, the external environment tended to be more favorable at the time of failures than at the time of successes, leading to diminished learning. Hence, entrepreneurs may have reported learning more from success because they confounded the effect of the type of the event they experienced (success versus failure)

with the favorability of the external environment at the time of the event. Regression results suggest that controlling for the favorability of the external environment (e.g., when the environment is favorable), less is learned from experiences of success than from experiences of failure, which is consistent with my prediction in Hypothesis 2. This finding has methodological implications. In particular, when researchers study memory based accounts of how much is learnt from success and failure, they may find that more is learnt from success only because failures are more likely recalled to occur in periods which are less conducive to learning.

An additional finding on learning from experience was that the more entrepreneurs knew at the beginning of their career, the more they learnt from events of success and failure.

Finally, I analyzed potential differences among user and non-user entrepreneurs in their memories of successes and failures and their reports of how much they learned from these experiences. As for the timing of events, more successes were recalled earlier by user entrepreneurs than by non-user entrepreneurs in absolute years of career. As for results on learning, I did not find support for the hypotheses 3 and 4. User status was associated with less learning from experience irrespective of whether the experience was a success or a failure. However, user status exerted interesting effects on the relationship between the entrepreneurs' initial knowledge and learning. I found that the relationship between initial knowledge and learning was particularly strong for user-entrepreneurs, whereas non-user entrepreneurs showed no relationship between how much they learned and what they knew at the start of their career.

Considering how much was learnt from first company experience, no significant difference was found between user and non-user entrepreneurs. For both user and non-users, more events were reported as experiences of successes than failures. Moreover, similar types of lessons were reported by user and non-user entrepreneurs.

Limitations

The current thesis findings should be evaluated in light of the limitations of this study.

First, analyzing successes and failures as entrepreneurs remembered them is not equivalent to examining successes and failures as entrepreneurs experienced them. Perhaps, certain successes and failures do not remain memorable over time, and our data did not capture when such experiences might have occurred and how much was learned from them. However, this is also a strength of this Thesis because to the best of my knowledge, researchers have not yet explored what can be learned from entrepreneurs' memories about the successes and failures of their careers. This is the first step in comparing what entrepreneurs report from memory and what the academic literature suggests about learning from experience.

Second, it should be noted that the studied sample was small. Thus, it is difficult to examine a greater number of control variables and interaction terms in the regressions predicting how much is learned from experiences of success and failure. For example, it would be interesting to create interaction terms between user status and all independent variables used in the regression analysis of learning for non-user entrepreneurs. However, this was not feasible given the current sample size. Moreover, the sample was not

representative of Portuguese entrepreneurs. It was a convenience sample. Thus, conclusions cannot generalize to the population of interest (all Portuguese entrepreneurs). Additionally, in order to increase sample size, several invitations to participate in the survey were sent to entrepreneurs operating in foreign countries.

Third, social desirability biases are always a concern in survey research (Richman, Kiesler, Weisband, & Drasgow, 1999). These biases are of significant concern in this survey because talking about career successes and especially failures is likely to trigger concerns about impression management. As entrepreneurship literature suggests, failures are very emotional experiences that entrepreneurs may not find comfortable talking about (Shepherd, 2003). This may have jeopardized some of the conclusions drawn with respect to differences in the type of experiences of success and failure reported, their timing or how much was learned from them. However, several measures were taken to insure response anonymity in the conducted survey, in order to minimize possible social desirability biases. Also, the results obtained are consistent with research findings to date on learning from success versus failure (Gino & Pisano, 2011), which gives me confidence in the conclusions I drew.

Finally, in comparing user-entrepreneurs to non-user entrepreneurs, we defined as user-entrepreneurs those who at least once in their career founded a company around a product or a service invented/modified for personal use, originally invented/modified for use in a previous job/business, or originally invented/modified for personal and job-related use. Perhaps, our conclusions regarding differences between user and non-user entrepreneurs would be different if instead we defined user-entrepreneurs to be those who founded most companies or all of their companies according to the criteria of user-

entrepreneurship. In our current sample, only 5 entrepreneurs founded all of their companies as user-entrepreneurs, and only 7 entrepreneurs founded most of their companies as user-entrepreneurs. These numbers were too small to be used in meaningful comparisons between user- and non-user entrepreneurs.

Future research

This Thesis opens a number of promising directions for future research. First of all, it would be interesting to examine successes and failures in the careers of entrepreneurs using techniques of qualitative research. Also, if a greater number of descriptions of success and failures could be collected, researchers could examine whether it is generally the case that failures tend to be dated more accurately and recalled with greater details than successes. My analysis of only 13 descriptions of successes and failures seems to suggest there may be significant differences in how experiences of failures and success are dated and described. It would also be interesting to examine whether the differences in how entrepreneurs recall successes and failures also affect what type of success or failure they focus on (general management versus people and relationships), and how much they believe they learnt from these experiences.

Future research should also examine the robustness of the research findings I present. This can be done by conducting studies with different samples and a greater set of control variables. For example, one could include a control variable for how easy/difficult it is for the entrepreneur to remember failures versus successes, and examine whether recall ease/difficulty affects reported learning from these experiences. Also, each entrepreneur may be asked to recall more than a single experience of success and failure. Other additional questions could be added to the survey. For example, rather than only asking

about the conditions of the external environment at the start of the entrepreneur's career and at event time, future research could include questions about the personal situation and the internal business environment of entrepreneurs, and examine how these impacted the learning over the entrepreneur's career. It would be also interesting to ask entrepreneurs about ethical aspects of their experiences of success and failure so that it could be studied how entrepreneurs learn from experience about their ethical positions and choices. Also, when analyzing entrepreneurs, business angels and venture capitalists should be considered as an important influence on the success of their business and learning. In this sense, entrepreneurs could be asked on how these economic agents influenced their career over time. Finally, since the entrepreneurial career starts at the foundation of the first company, asking for more details on how learning improved based on this experience could add additional value for future research. An expanded version of the survey is included as Appendix B, which incorporates some of the questions that could be added to improve the quality of future research.

Conclusion

Entrepreneurship is an important driver of economic growth and prosperity. In this Thesis, I examined what can be learned about career experiences of entrepreneurs from their memories of successes and failures. To the extent that in order to foster entrepreneurship it is necessary to understand who entrepreneurs are and how they learn from experience, this Thesis makes an important contribution to the literature on entrepreneurship and opens promising avenues for future research.

References

- Akbar, H. (2003). Knowledge levels and their transformation: Towards the integration of knowledge creation and individual learning. *Journal of Management Studies*, 40 (8), 1991-2014.
- Arnett, J. J. (2000). Emerging adulthood: A theory of development from the late teens through the twenties. *American Psychologist*, 55, 469-480.
- Bahrack, H.P., Hall, L.K., & Da Costa, L.A. (2008). Fifty years of memory of college grades: accuracy and distortions. *Emotion*, 8, 13-22.
- Berntsen, D., & Bohn, A. (2010). Remembering and forecasting: The relation between autobiographical memory and episodic future thinking. *Memory & Cognition*, 38(3), 265–278.
- Berntsen, D., & Rubin, D. C. (2002). Emotionally charged autobiographical memories across the life span: The recall of happy, sad, traumatic, and involuntary memories. *Psychology & Aging*, 17, 636-652.
- Berntsen, D., & Rubin, D. C. (2004). Cultural life scripts structure recall from autobiographical memory. *Memory & Cognition*, 32(3), 427–442.
- Bluedorn, A. C. and Martin, G. (2008). The Time Frames of Entrepreneurs. *Journal of Business Venturing*, 23, 1-20.
- Bohn, A., & Berntsen, D. (2008). Life story development in childhood: The development of life story coherence abilities and the acquisition of cultural life scripts from late middle childhood to adolescence. *Developmental Psychology*, 44, 1135-1147.
- Branson, R. (2012, February 7). Richard Branson on Decision-Making For Entrepreneurs. *Entrepreneur.com*
- Retrieved from
- <http://www.entrepreneur.com/article/222739>
- Cameron, A.C., & Trivedi, P.K. (2009). *Microeconometrics using Stata*. Texas: Stata Press
- Conway, M.A., Collins, A.F., Gathercole, S.E., & Anderson, S.J. (1996). Recollections for true and false autobiographical memories. *Journal of Experimental Psychology*, 125, 69-95.
- Conway, M. A. & Rubin, D. C. (1993). The structure of autobiographical memory. In *Theories of memory*. 103-137.

Davis, P. J. (1999). Gender differences in autobiographical memory for childhood emotional experiences. *Journal of Personality and Social Psychology*, 76(3), 498-510.

Dearlove, D. (2007). *Business the Richard Branson Way: 10 Secrets of the World's Greatest Brand Builder (3rd Edition)*. Chichester: Capstone

Ellis, S., & Davidi, I. (2005). After-event reviews: Drawing lessons from successful and failed experience. *Journal of Applied Psychology*, 90, 857–871.

Ernst&Young. (2012). *The Nice Côte D'Azur Entrepreneurship Barometer 2011*

Retrieved from

[http://www.ey.com/Publication/vwLUAssets/Entrepreneurs_speak_out_2012/\\$FILE/Entrepreneurs%20speak%20out_2012.pdf](http://www.ey.com/Publication/vwLUAssets/Entrepreneurs_speak_out_2012/$FILE/Entrepreneurs%20speak%20out_2012.pdf)

Escobedo, J.R. & Adolphs, R.(2010). Becoming a better person: temporal remoteness biases autobiographical memories for moral events. *Emotion*, 10(4), 511-518

Gaesser, D., Sacchetti, D.C., Addis, D. R., & Schacter, D.L. (2011). Characterizing age-related changes in remembering the past and imagining the future. *Journal of Psychology and Aging*. 26, 80-84.

Galton, F. (1879). Psychometric experiments. *Brain*, 2, 149-162.

Gamboz, N., Brandimonte, M.A., & De Vito, S. (2010). The role of past in the simulation of autobiographical future episodes. *Journal of Experimental Psychology*, 57, 419-428.

Gerber, S. (2012, March 5). How Entrepreneurship Can Fix Young America. *Time*.

Retrieved from

<http://business.time.com/2012/03/05/how-entrepreneurship-can-fix-young-america/>

Gino, F., & Pisano, G.P. (2011). Why leaders don't learn from success. *Harvard Business Review*, 89(4), 68-74.

Glück, J., & Bluck, S. (2007). Looking back across the lifespan: A life story account of the reminiscence bump. *Memory and Cognition*, 35, 1928–1939.

Goldsmith, L.R., & Pillemer, D.B. (1988). Memories of statements spoken in everyday contexts. *Applied Cognitive Psychology*, 2, 273-286.

Habermas, T., & de Silveira, C. (2008). The development of global coherence in life narratives across adolescence: Temporal, causal and thematic aspects. *Developmental Psychology*, 44, 707–721.

Hastie, R. (1984). Causes and effects of causal attribution. *Journal of Personality and Social Psychology*, 46, 44–56.

Howes, J.L., & Katz, A.N. (1988). Assessing remote memory with an improved public events questionnaire. *Psychology and Aging*, 3, 142-150.

Howes, L.H., & Katz, A.N. (1992). Remote Memory: Recalling Autobiographical and Public Events from Across the Lifespan. *Canadian Journal of Psychology*, 46(1), 92-116.

Jansari, A., & Parkin, A.J. (1996). Things that go bump in your life. Explaining the reminiscence bump in autobiographical memory. *Psychology and Aging*, 1, 85-91.

Janssen, S.M., Rubin, D.C., & Conway, M.A. (2012). The reminiscence bump in the temporal distribution of the best football players of all time: Pelé, Crujff or Maradona?. *Quarterly Journal of Experimental Psychology*, 65(1), 165-178.

Keil & Robey. Turning Around Troubled Software Projects: An Exploratory Study of the Deescalation of Commitment to Failing Courses of Action. *Journal of Management Information Systems*, 15(4), 63-88.

Kelley, D.J., Singer, S. & Herrington, M. and the Global Entrepreneurship Research Association (2012). *Global Entrepreneurship Monitor Report 2011*

Retrieved from

<http://www.gemconsortium.org/docs/download/2201>

Leist, A.K., Ferring, D., & Filipp, S.H. (2010). Remembering positive and negative life effects: Associations with future time perspective and functions of autobiographical memory. *The Journal of Gerontopsychology and Geriatric Psychiatry*, 23, 137-147.

Levine, L. J., & Bluck, S. (2004). Painting with broad strokes: Happiness and the malleability of event memory. *Cognition & Emotion*, 18, 559-574.

Levine, L. J., Stein, N. L., & Liwag, M. D. (1999). Remembering children's emotions: Sources of concordance and discordance between parents and children. *Developmental Psychology*, 35, 790-801.

Libby, L.K., & Eibach, R.P. (2002). Looking back in time: Self-concept change affects visual perspective in autobiographical memory. *Journal of Personality and Social Psychology*, 82, 167 – 179.

McGrath P.A. Chronic pain in children. (1999). In: Crombie, I., Croft, P., Linton, S., LeResche, L., Von Korff M. (Eds). *Epidemiology of Pain*. Seattle: IASP Press, 81–101.

- Minniti, M., and Bygrave, W. (2001). A dynamic model of entrepreneurial learning. *Entrepreneurship: Theory and Practice*, 25(3), 5-16.
- Moen, F., & Skaalvik, E. (2011). Causal Attribution among Business Executives – Investigation. *The Journal of Excellence*, 15, 40-59.
- Oliveira, P. & E. von Hippel (2011), “Users as Service Innovators: The Case of Banking Services,” *Research Policy*, 40 (6), 806-818.
- Pasupathi, M., & Mansour, E. (2006). Adult age differences in autobiographical reasoning in narratives. *Journal of Psychology and Aging*, 42, 798-808.
- Pillemer, D.B. (1992). Remembering personal circumstances: A functional analysis. In E. Winograd & U. Neisser (Eds.), *Affect and accuracy in recall: Studies of "flashbulb" memories*. New York: Cambridge University press.
- Pillemer, D. B. (1998). What is remembered about early childhood events? *Clinical Psychology Review*, 18, 895-913.
- Pillemer, D. B. (2001). Momentous events and the life story. *Review of General Psychology*, 5, 123-134.
- Piolino, P., Desgranges, B., Clarys, D., Guillery-Girard, B., Taconat, L., Isingrini, & M., Eustache, F. (2006). Autobiographical memory, autoegetic consciousness and self-perspective in aging. *Journal of Psychology and Aging*, 3, 510-525.
- Puri, M., & Robinson, D.T. (2006). Who are Entrepreneurs and why do they behave that way. *Working Paper*. Duke University and NBER
- Rasmussen, A. S., & Berntsen, D. (2009). The possible functions of involuntary autobiographical memories. *Applied Cognitive Psychology*, 23, 1137–1152.
- Rathbone, C. J., Moulin, C. J. A., & Conway, M. A. (2008). Self-centered memories: The reminiscence bump and the self. *Memory & Cognition*, 36, 1403–1414.
- Richman, W., Kiesler, S., Weisband, S., & Drasgow, F. (1999). A Meta-Analytic Study of Social Desirability Distortion in Computer-Administered Questionnaires, Traditional Questionnaires, and Interviews. *Journal of Applied Psychology*, 84, 754-775.
- Rubin, D. C., & Berntsen, D. (2003). Life scripts help to maintain autobiographical memories of highly positive, but not highly negative events. *Memory & Cognition*, 31, 1-14.

Rubin, D.C., & Schulkind, M.D. (1997). Distribution of important and word-cued autobiographical memories in 20-, 35-, and 70-year-old adults. *Psychology and Aging*, 12(3), 524-535.

Schlagman, S., Kliegel, M., Schulz, J., & Kvavilashvili, L. (2009). Differential effects of age on involuntary and voluntary autobiographical memory. *Journal of Psychology and Aging*, 24, 397-411.

Schryer, E., & Ross, M. (2011). Evaluating the valence of remembered events: The importance of age and self-relevance. *Journal of Psychology and Aging*, 27(1), 237-242

Schumpeter, J.A. (1949). *Economic theory and entrepreneurial history*. Cambridge: Harvard UP.

Shah, S. K., Smith, S.W., & Reedy, E.J. (2011). Who are User Entrepreneurs? Findings on Innovation, Founder Characteristics, and Firm Characteristics. *The Kauffman Firm Survey*.

Shah, S. K. & Tripsas, M. (2007), The accidental entrepreneur: the emergent and collective process of user entrepreneurship. *Journal of Strategy and Entrepreneurship*, 1, 123–140.

Shepherd, D. A. (2003). Learning from business failure: Propositions of grief recovery for the self-employed. *Academy of Management Review*. 28(2), 318-328.

Shepherd, D.A. (2004). Educating Entrepreneurship Students about emotion and learning from failure. *Academy of Management Learning and Education*. 3, 274-287.

Shepherd, D. A., & Cardon, M. S. (2008). Negative emotional reactions to project failure and the self-compassion to learn from failure experience. *Working paper*, Indiana University.

Shepherd, D.A., Patzel, H., & Wolfe, M. (2011). Moving forward from project failure: negative emotions, affective commitment, and learning from the experience. *Academy of Management Journal*. 54(6), 1229-1259.

St Jacques P.L. & Levine, B. (2007). Ageing and autobiographical memory for emotional and neutral events. *Memory*, 15,129–144.

Timmons, J.A. (1994). *New venture creation : entrepreneurship for the 21st century*. Boston: McGraw-Hill/Irwin.

Ucbasaran, D., Westhead, P. and Wright, M. (2011) Why Serial Entrepreneurs Don't Learn from Failure. *Harvard Business Review*, 89, 26-2.

Wong, P.T.P. & Weiner, B. (1981). When people ask “why” questions, and the heuristics of attributional search. *Journal of Personality and Social Psychology*, 40, 650-663.

Yamakawa, Y, Peng, M.W., & Deeds, D.L. (2010) Revitalizing and Learning From Failure For Future Entrepreneurial Growth. *Frontiers of Entrepreneurship Research*, 30(6), Article 1.

Zwilling, M. (2011, December 6). Most entrepreneurs don't drop out Harvard. *Fortune*.

Retrieved from

<http://finance.fortune.cnn.com/2011/12/06/most-great-entrepreneurs-dont-drop-out-of-harvard/>

Figures and Tables

Figure 1

Distribution of Bankruptcies over years of entrepreneurial career

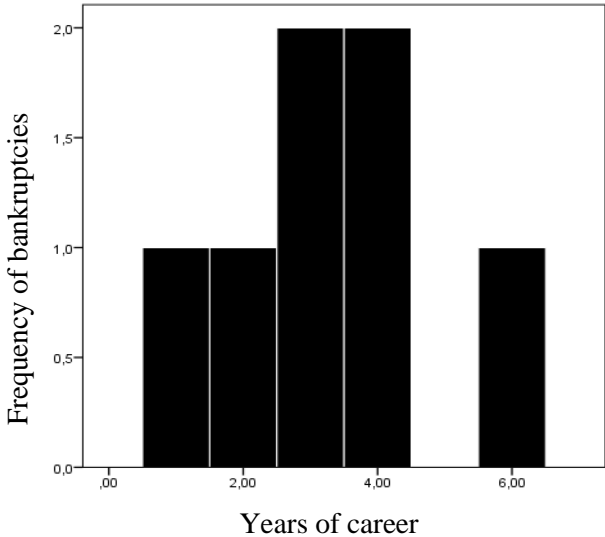


Figure 2

Distribution of successes over years of entrepreneurial career

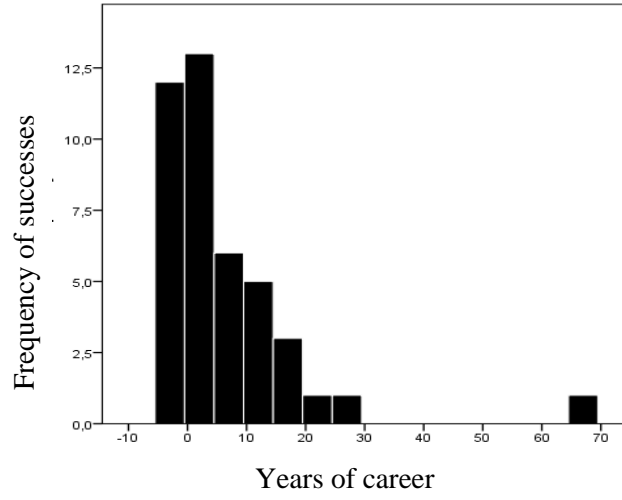


Figure 3

Distribution of failures over years of entrepreneurial career

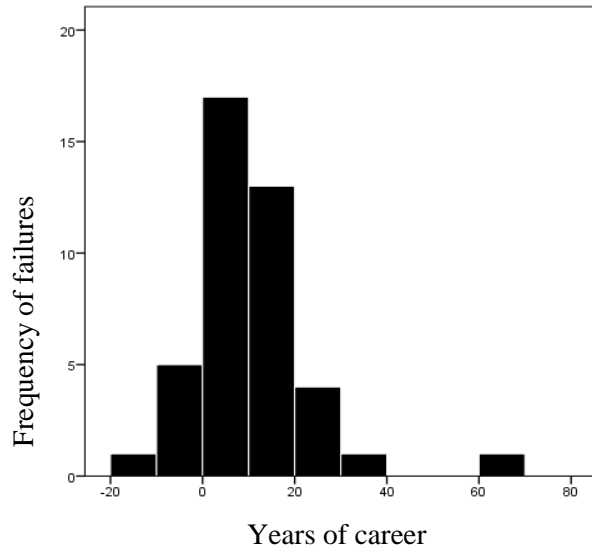


Figure 4

Structure of lessons learned from success (left panel) and failure (right panel) in total lessons learned from first company experience

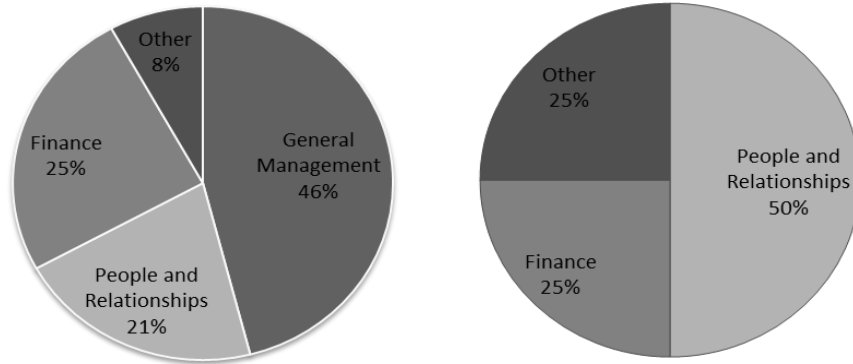


Figure 5

Industry structure of user-entrepreneurship (first user-entrepreneurship companies of the career)

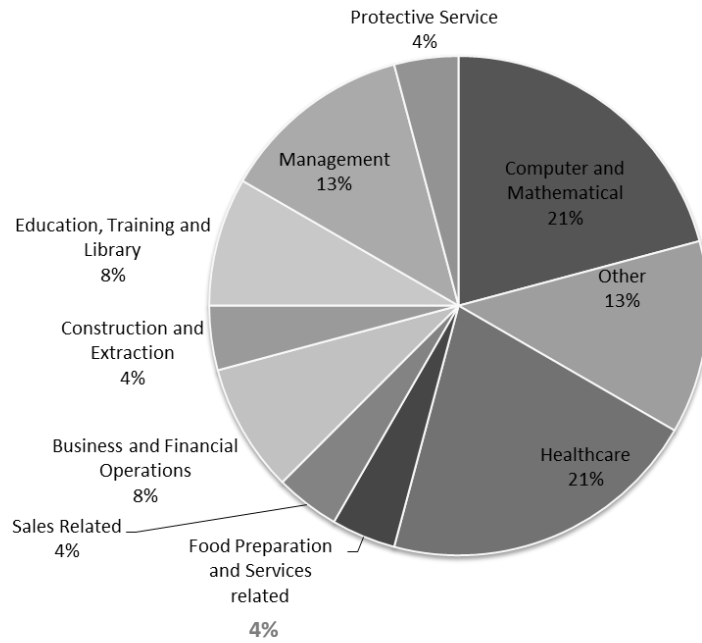


Table 1

Descriptive Statistics

	M	SD	1	2	3	4	5	6	7	8	9	10	11	12	13
1 Gender (0 = F ; 1 = M)	.88	.33	-												
2 Age	46.43	12.03	.12	-											
3 First Company - Marital status (1 = Married and In a Relationship; 0 = otherwise)	.79	.42	-.01	.33*	-										
4 Currently - Marital status (1 = Married and In a Relationship; 0 = otherwise)	.76	.43	.312*	.26	.12	-									
5 First Company - Yearly Income	1.95	1.32	-.07	.09	.07	.07	-								
6 Currently - Yearly income	3.60	1.68	.13	.47**	.05	.27	.23	-							
7 First Company - Education (1 = Grad School; 0 = Below Grad School)	.29	.46	-.26	.08	.33*	-.14	.22	-.04	-						
8 Currently - Education (1 = Grad School; 0 = Below Grad School)	.60	.50	-.15	-.05	.16	-.01	.23	.21	.52**	-					
9 Previous work experience in same industry (Years)	4.64	6.91	.08	.22	-.02	.02	.5**	-.09	-.11	-.28	-				
10 Overall Previous Experience (years)	6.55	6.29	.19	.36*	.27	.13	.35*	-.10	-.03	-.16	.81**	-			
11 Overall knowledge at career start	2.99	.66	.02	.10	.17	.05	.21	.08	.07	.20	.02	.29	.87		
12 Relationships Index	3.17	.77	-.01	.09	.15	.01	.26	.09	.18	.28	-.03	.24	.8**	.76	
13 Finance Index	2.60	.85	.06	.10	.14	-.05	.08	.04	.01	.03	.06	.29	.78**	.4**	.86

$N = 42$

Note: *. $p < .05$ **. $p < .01$

Table 2

Descriptive Statistics

	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12
1 Gender	.88	.33	-											
2 Age	46.43	12.03	.12	-										
3 User Entrepreneur (1=Yes; 0=No)	.57	.50	-.02	.06	-									
4 Companies Founded	2.90	1.34	.31*	.44**	.08	-								
5 Average Cofounders	2.88	1.87	-.10	-.17	-.15	-.14	-							
6 Use of IP (1=Yes; 0=No)	.71	.46	-.07	.03	-.12	-.09	-.15	-						
7 Bankruptcy (1=Yes; 0=No)	.07	.26	.10	-.20	.05	-.19	-.02	-.03	-					
8 Lessons Success Reported (1=Yes; 0=No)	.93	.26	-.10	.06	-.05	-.16	-.02	-.18	.08	-				
9 Past Orientation	3.14	.78	.12	-.11	-.24	-.21	.26	-.02	-.05	.11	.74			
10 Overall Optimism	3.81	.57	.05	-.17	-.01	-.06	.08	.11	-.29	.07	-.07	.65		
11 Future Professional Years	19.07	8.9	-.19	-.58**	-.20	-.10	.12	.09	.04	-.18	-.02	.17	-	
12 Future Founded Companies	4.14	2.77	.21	-.28	.19	.11	.27	-.12	.09	-.29	.00	-.03	.20	-

$N = 42$

Note: *. $p < .05$ **. $p < .01$

Table 3

Results of regression analyses predicting learning from events of success and failure

Independent variables	Model 1		Model 2	
Success (1 = success, 0 = failure)	-1.52	(.07)*	-2.03	(.04)***
Initial knowledge base (IK)	.38	(.05)*	-.12	(.68)
External environment at career start (EES)	-.08	(.57)	-.32	(.07)*
External environment at time of event (EEE)	-.25	(.04)**	-.43	(.04)**
Event timing (in years of career)	-.01	(.02)**	-.01	(.28)
Past temporal orientation	.23	(.03)**	.28	(.04)**
Gender (1 = Male, 0 = Female)	-.28	(.26)	-.36	(.21)
Age	-.01	(.2)	-.01	(.19)
IK*Success	.03	(.9)	.05	(.83)
EES*Success	.20	(.21)	.22	(.19)
EEE*Success	.33	(.02)**	.42	(.02)**
User status (1 = user-entrepreneur, 0 = non-user)	-		-3.70	(.01)***
User status * IK	-		.64	(.04)**
User status * EES	-		.31	(.19)
User status * EEE	-		.19	(.26)
User status * Success	-		.05	(.89)
Constant	3.59	0***	6.49	0***
R2	0.31		0.38	

$N = 84$

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

Appendix A

Review of studies on Autobiographical Memory

Authors	Sample	Task	Timing	Memory Checks	Other Measures regarding reported events	Use of event data in data analysis	Data Collection
Bahrick, Hall, & Da Costa (2008)	N = 276	Identify all subject areas in which the respondents had taken only one or two courses in college. For each identified area, they listed the name of the course and the grade they received in each one. In addition, they had to indicate on their degree of confidence that the recalled grade was correct and their degree of enjoyment with the course. Finally, they had to list all the courses they recalled having taken in their major and give confidence ratings for the recalled grade and enjoyment for each listed course. Used as cue, each respondent received a copy of his/her academic transcript without grades	Time intervals defined by the interviewers			<p>Table with the frequency of recalled grades as a function of actual grades</p> <p>Graph with mean percentages of recall as a function of level of GPA and retention interval</p> <p>Graph with mean number of correctly recalled grades</p>	Questionnaires

Authors	Sample	Task	Timing	Memory Checks	Other Measures regarding reported events	Use of event data in data analysis	Data Collection
Berntsen & Bohn, 2010	N=122	Recall 5 memories, with 5 cue words Recall 5 memories and provide description	Defined by the respondent		<ul style="list-style-type: none"> • Vividness • Belief • Identity • Valence • P/re-experience • Visual-auditory • Perspective • Reaction • Life Story • Life Script • Importance 	<p>Table with Mean and Standard Deviation (considering 7-Point Likert Scale) of memories according to defined categories of Berntsen and Rubin (2004)</p> <p>Table of Percentages of Cultural Life Scripts events in Past and Future Event Events by categories</p> <p>Graph with proportion of life script events as a function of temporal distance to present, in years</p>	Questionnaires

Authors	Sample	Task	Timing	Memory Checks	Other Measures regarding reported events	Use of event data in data analysis	Data Collection
Bohn & Berntsen (2008)	N = 120 Danish middle class children (42 third graders, 43 fifth/sixth graders, and 35 eight graders)	3 different tasks: - Describe a recent autobiographical event - Write his/her personal life story - Describe a cultural life script (imagine 10 events of a newborn of their sex across the life span)	Autobiographical event – a memory of previous Fall holidays (3 weeks before data collection);		<ul style="list-style-type: none"> • Global life story coherence • Life story length • Life story beginnings • Life story endings 	Tables and graphs with frequencies for type of events	In-class: interviewer delivered a booklet with the instructions to the students and individually, they had to fulfill the requirements of the study
Conway, Collins, Gathercole, & Anderson (1996)	N = 2	Record in a diary true and false events and thoughts over a period of 5 months. 7 months later, the participants had to discriminate between false and true diary entries and judge the state of memory awareness.	Defined by the researchers		Types of awareness: <ul style="list-style-type: none"> • Re-collective experience • Feeling or familiarity • Distinct state of awareness 	Table with the number of diary entries by type (true, altered and false events; true, altered and false thoughts) Frequency of true and false memories for events and thoughts by type of awareness at recognition	Individual diaries

Authors	Sample	Task	Timing	Memory Checks	Other Measures regarding reported events	Use of event data in data analysis	Data Collection
Davis (1999)	N = 213	Recall moments when the respondents felt: happy, sad, angry, anxious, fearful, scared, shy, self-conscious, embarrassed.	Defined by the respondent		<ul style="list-style-type: none"> • Number of memories • Latency to retrieve the first memory • Mean intensity of affect • Age of earliest memory 	Graph with mean number of emotional memories in each recalled condition by sex gender	Individual questionnaires and interviews
Escobedo & Adolphs (2010)	N = 100	Recall 30 memories/events related to a specific cue-question (which included a cue word in bold). E.g. of words: Happy, Relieved, Proud, Lied, Most Afraid	Dated by the respondent		<ul style="list-style-type: none"> • Morality of actions 	<p>Graph with temporal distribution of memories as evoked by specific cue words (means)</p> <p>Graph with the valence of rating category (Moral Weakness/Strength, Doing the wrong/Right thing, Hurting/Helping someone) versus the remoteness of memory</p>	Questionnaires

Authors	Sample	Task	Timing	Memory Checks	Other Measures regarding reported events	Use of event data in data analysis	Data Collection
Gaesser, Sacchetti, Schacter, & Addis (2011)	N= 30	Recall a personal event, dating and locating it, that occurred in the last few years using a picture (which consisted of an image of a specific action occurring – e.g. people at the beach) as cue to help focus on an event. This event needed to be related to the presented picture but not necessarily to a similar situation.	Dated by the respondent			Regression analysis	Group Dynamics

Authors	Sample	Task	Timing	Memory Checks	Other Measures regarding reported events	Use of event data in data analysis	Data Collection
Gamboz, Brandimonte &, De Vito (2010) (N = 28	Mentally re-experience and pre-experience 2 temporally close (2weeks) and 2 temporally distant (few years) autobiographical episodes in response to 8 cue words (future events were plausible). Then, for 60 seconds the respondents had to retrieve/imagine as many details as possible about the episodes. Finally, they had to rate o 7point scales the phenomenal characteristics of each event.	Defined by the interviewer		<ul style="list-style-type: none"> • Sensorial Details • Structure • Clarity of location • Temporal information • Valence • Intensity • Visual perspective • Richness • Frequency of occurrence 	<p>Table with mean ratings as a function of event type (past and future) and temporal distance (near and distant) for the phenomenal characteristics</p> <p>Table with frequency distribution of ratings concerning the novelty of future scenarios as a function of temporal distance (near and distant)</p>	Individual Interviews

Authors	Sample	Task	Timing	Memory Checks	Other Measures regarding reported events	Use of event data in data analysis	Data Collection
Glock & Bluck, 2007	N = 659	List 15 most important events of your life	Dated by the respondent	Control Memory	<ul style="list-style-type: none"> • Event valence • Perceived Control • Influence on who the individual have become 	<p>Percentage of events by time period</p> <p>Considering the three measures (event valence, perceived control and influence on development), the percentage of events by time period was plotted.</p>	Questionnaires
Goldsmith & Pillemer (1988)	N = 182	<p>Questionnaire 1: Describe a memory of the freshman year in college, including details. Secondly, provide 4 additional memories of the same period, with descriptions.</p> <p>Questionnaire 2: Analyze each of the memories described in Questionnaire 1, using ordered 5 point scales. The respondents had to rate the intensity of emotion at the time of the event, the degree of surprise, the perceived impact on life and the clarity of the memory.</p>	Defined by the interviewer		<ul style="list-style-type: none"> • Intensity of emotion experienced • Degree of surprise felt • Perceived impact of the event on life • Clarity of memory 	<p>3 age groups were defined: alumnae after 2, 12 and 24 years of graduation.</p> <p>Graph with temporal distribution of freshman year memories for the three alumnae groups</p> <p>Graph with mean ratings of reactions to remembered events in terms of emotion, impact on time, impact on retrospect and surprise.</p>	Individual home-sent questionnaires

Authors	Sample	Task	Timing	Memory Checks	Other Measures regarding reported events	Use of event data in data analysis	Data Collection
Habermas & Silveira (2008)	N = 102 German children, equally divided according to 4 age groups (8 years old, 12 years old, 16 years old, and 20 years old)	<p>Participants were asked:</p> <ul style="list-style-type: none"> - If they had experienced 14 types of life events (parents death, change of school, birth of sibling, among others); - The frequency of engaging in five biographical practices (keeping a diary, writing poems, looking at old pictures, reading old letters, reading biographies), and confiding in same and cross gender parent and friend. - Write the 7 most important events of their lives and then recount their live stories including the chosen memories. 	Dated by the respondents		<ul style="list-style-type: none"> • Length of life narrative • Time coherence • Thematic coherence 	Table with frequencies by event type	Individual interviews

Authors	Sample	Task	Timing	Memory Checks	Other Measures regarding reported events	Use of event data in data analysis	Data Collection
Howes & Katz (1988)	N=26	Answer specific questions about three categories of news-events (Politics/Disasters, People/Entertainment and Sports/Crime), occurred in 11 past time periods (1920-1925, 1926-1931... 1980-1981). First no answers were provided (Recall). The second task included 4 answer options (Recognition). e.g. Sports and Crimes (1962-1967) – For what crime was Richard Speck arrested? First no multiple answer options. Secondly, four options of answer (Killing Student, Armed Robbery, Strangler, and Shooting Texas Students	Defined by the authors			Graph with mean recall and recognition scores on each time period for recall and recognition tasks, for young, middle-aged and older groups Table with the correlations between the total scores on the tasks and the demographic variables	Questionnaires

Authors	Sample	Task	Timing	Memory Checks	Other Measures regarding reported events	Use of event data in data analysis	Data Collection
Howes & Katz, 1992	N = 48	Describe 5 event (public or private), from a total list of 50 random words, 10 cue-words were assigned to each event Describe all events remembered within(public or private), according to cue age intervals (0-15, 16-30, 31-45, 46-60 and 61-present day) Describe one autobiographical event, with 10 cue words (from a total list 100 random words, 10 cue-words were assigned to each event)	Dated by the respondent Set by the researcher as an interval Dated by the respondent	For all events of the 3 tasks, spouses were asked to confirm the event occurrence and its date		Average number of events per time period (graph and table)	Questionnaires
Jansari & Parkin (1996)	N = 82	Recall a specific memory in which the respondent was involved, according to a cue-word. Then, all memories needed to be dated by the respondent.	Defined by the respondent			The respondents were divided into 3 age-groups (36-40, 46-50, 56-60). Graphs with the proportion of memories reported per participant at 5 year time intervals for the different age groups	Individual Interviews

Authors	Sample	Task	Timing	Memory Checks	Other Measures regarding reported events	Use of event data in data analysis	Data Collection
Leist, Ferring, & Philipp (2010)	N = 260	According to a list of 31 negative life events and 15 positive life events, respondents were required to mark if and when the event had occurred. Additionally, respondents could add two events that were not listed.	Defined by the respondent		<ul style="list-style-type: none"> • Age and gender differences 	<p>Graph with the distribution of positive and negative life events over the lifespan.</p> <p>Table with the descriptive statistics of chronological age and reported age at the occurrence of positive and negative events in years</p>	Individual interviews

Authors	Sample	Task	Timing	Memory Checks	Other Measures regarding reported events	Use of event data in data analysis	Data Collection
Levine, Liwag, & Stein (1999)	N = 110 (77 parents and 33 children)	<p>Parents were asked to recall four episodes that had occurred in the past week where their children seemed to have felt happiness, sadness, anger and fear. After recalling, they were asked a set of questions concerning their child's thoughts, goals and behavioral responses to the event (e.g.: what did you child do?). Additionally, the parents were asked to judge whether their children would agree with their attribution of the child's emotions.</p> <p>Children were presented with one or two sentence summary of the event recalled by his/her parent and asked if he/she remembered it. If the children did not remember, the interviewer would move to the next event. If they remembered, they were asked the same questions that their parents answered.</p>	Time interval defined by the interviewer	The confirmation of the parents' responses by the children	<ul style="list-style-type: none"> • Happiness • Sadness, • Anger • Fear 	Tables with the proportion of children's emotion reports concordant with parent's emotion reports, by emotion	Individual interviews, first with parents and later with their children

Authors	Sample	Task	Timing	Memory Checks	Other Measures regarding reported events	Use of event data in data analysis	Data Collection
Libby & Eibach (2002)	N = 12	Nominate and write for 5 minutes the aspects of themselves that have changed the most since high school (e.g.: religious beliefs, political preferences). Then, recall five memories from high school that were related to the aspect of themselves they had just nominated. Additionally, the respondents were asked to refer if their memory was from a first person perspective or from an observer's perspective.	Defined by the interviewer			Table with categorization of memories	Individual questionnaires
Pasupathi & Mansour (2006)	N = 184	Think about and list turning points in their lives. Select one turning point and talk about it in detail. Then, recall explicitly about emotions at the time of the turning point. The same procedure was run but for memories of life-crisis.	Defined by the respondent			Graph with the percentage of participants at each age who crisis narratives reflected self-event connections	Individual Interviews

Authors	Sample	Task	Timing	Memory Checks	Other Measures regarding reported events	Use of event data in data analysis	Data Collection
Piolino et al. (2006)	N = 180	Recall autobiographical memories from five periods of time covering the entire life span. The participants were assessed by means of four themes (a meeting or event linked to a person; an event that occurred during the participant's schooling, working life or retirement; a journey; a family event)	Defined by the interviewer			Graphs with the proportion of the remember/know responses (mean) as a function of age group and the kinds of information Graph with the performance on the autobiographical memory retrieval task as a function of age group and lifetime period	Group scenario with individual booklet responses

Authors	Sample	Task	Timing	Memory Checks	Other Measures regarding reported events	Use of event data in data analysis	Data Collection
Rathbone, Moulin & Conway (2008)	N=16	Write 10 enduring <i>I am</i> statements they feel that “defined their identity. Then, select 3 statements as the “most personally significant to their sense of identity and recall 10 memories related to those statements. Finally, give a title, brief description and their age at the time they remembered the event	Dated by the respondent			Graph with the distribution of memories across the life span Graph with the number of memories generated by age of self-image	Home-sent questionnaires

Authors	Sample	Task	Timing	Memory Checks	Other Measures regarding reported events	Use of event data in data analysis	Data Collection
Rasmussen & Berntsen, 2009	<p>Study 1: N=120</p> <p>Study 2: N=136</p>	<p>Study 1: Recall 3 function memories (real-world usefulness and adaptive significance of memory in terms of direction, self and social categories) and 1 control memory, with cue questions to guide individuals (e.g. for social memory “try to recall a memory of an event that you have often shared with others”)</p> <p>Evaluate previous memories according to influence on life story and identity</p> <p>Study 2: Recall one memory for 5 categories: involuntary, positive, control, negative and flashbulb, with one cue question for each memory</p>	<p>Study 1: Dated by the respondent</p> <p>Study 2: Not requested</p>		<ul style="list-style-type: none"> • Influence on life story • Influence on individual’s identity 	<p>Percentage of memories per category.</p> <p>Considering 7-Point Likert scale, table with the mean and SD for the most positive and negative memory. This was plotted considering the different categories of memories that were being tested. (e.g. the participants’ most negative memories had more directive function than did their most positive memories, mean of 3.62 comparing to 3,26)</p> <p>Graph with mean ratings for the categories of memories</p>	Questionnaires

Authors	Sample	Task	Timing	Memory Checks	Other Measures regarding reported events	Use of event data in data analysis	Data Collection
Rubin and Bertsen (2003)	Study 1: N = 1307 Study 2: N = 87	Study 1 Recall the memory of when the respondent felt most afraid, most proud, most jealous, most in love, most angry and what was the most important event ever, with one cue-question for each memory Study 2 Imagine an 70-year old person and estimate the age at the time each memory (most afraid, most proud, most jealous, most in love, most angry and what was the most important event ever) took place. Additional state the confidence on the answer (on a 1 to 7 scale)	Defined by the respondent			Study 1 Table with the cues rank ordered by proportion of respondents reporting no memory of the specific type of event required Graphs with distribution of autobiographical memories for the negative emotions, positive emotions and important ones, by age (from 20s to 70s or above) Study 2 Table with the life script as indicated by the individuals who dated an event in each decade, with confidence rating Graphs with comparison of the distribution of autobiographical memories from survey participants of study 1 in their 60's with the distribution of autobiographical memories of the hypothetical 70-year old individual	Face-to-face interviews in the respondents ' homes

Authors	Sample	Task	Timing	Memory Checks	Other Measures regarding reported events	Use of event data in data analysis	Data Collection
Rubin & Schulkind (1997)	N = 120	Provide one autobiographical memory for each 124 cue-word provided, and date it on time. Secondly, select the 5 most important events and provide short descriptions. Finally, evaluate the different events according to Likert-Scales.	Defined by the respondent		<ul style="list-style-type: none"> • Vividness • Pleasantness • Significance • Novelty • Frequency of rehearsal 	<p>Table with the total number of memories for various periods in life (participants were divided into group-ages)</p> <p>Graph with the distribution of the world-cued autobiographical memories for all participants for the first 10 years of life</p> <p>Graphs with the distribution of the word-cued autobiographical memories according to the group-age (percentage memories per decade)</p>	Home individual interviews

Authors	Sample	Task	Timing	Memory Checks	Other Measures regarding reported events	Use of event data in data analysis	Data Collection
Schlagman, Kliegel, Schulz, & Kvavilashvili (2009)	N = 38	Record involuntary memories in a diary for 7 consecutive days. The diaries should carry the diaries with them and as soon as possible, record them in a 2 page questionnaire	Defined by the respondent		<ul style="list-style-type: none"> • Specificity • Vividness • Event Pleasantness • Memory pleasantness 	<p>Table with the percentage of valid and discarded voluntary and involuntary autobiographical memories</p> <p>Graph with overall mean pleasantness ratings as function of memory type (involuntary and voluntary) and age group</p>	<p>Individual questionnaires</p> <p>Diaries</p>

Authors	Sample	Task	Timing	Memory Checks	Other Measures regarding reported events	Use of event data in data analysis	Data Collection
Schryer & Ross (2011)	Study 1 N = 47 2 groups: younger (17-26 years old) and older one (67-87 years old)	Describe 6 personal events that had occurred in the participants' lives over the past 12 months (2 unpleasant ones, 2 neutral, and 2 pleasant). Rate the emotional valence of each event on a scale from -3 (very negative) to 3 (very positive)	Set by the interviewer		<ul style="list-style-type: none"> Emotional Valence 	<p>Study 1</p> <p>Table with Mean and Standard Deviation of older and younger adults' average rating of own positive, negative and neutral autobiographical memories</p> <p>Study 2</p> <p>Table with Mean and Standard Deviation of older and younger participants of the positive, negative and neutral autobiographical memories produced by the participants of study 1</p>	Individual face-to-face interviews
	Study 2 N = 95 2 groups: younger (18-24 years old) and older one (65-88 years old)	Participants were randomly assigned to rate the memories of either a younger or older adult from study 1, using the same scale as the previous study.					

Appendix B

Survey

Welcome!

The survey is conducted jointly by research faculty at Catolica Lisbon and Nova Schools of Business and Economics.

THE PURPOSE

The purpose of this survey is to learn about entrepreneurs and their careers in Portugal. The findings of the study should be of interest, first of all, to entrepreneurs themselves. Specifically, the results (1) will bring a new perspective in terms of the contributions of various activities and experiences of entrepreneurs to their business outcomes, and (2) will provide a better understanding of the entrepreneurship landscape in Portugal.

DURATION

The survey should not take more than 20 minutes of your time.

RESPONSE ANONYMITY

Please provide answers to the best of your knowledge, honestly and sincerely. For purposes of this research, it is important that you answer all questions in person and without interruptions.

We guarantee the anonymity and confidentiality of your data. No company names or names of individuals need to be revealed in your answers. Please refer to these as suppliers, customers, collaborators, colleagues, friends and so on, without specifying the names. Also, you will use a pseudonym to ensure that your name cannot be associated to any specific response on this questionnaire.

Your data will inform the analysis as part of the broader sample and will be used for research purposes exclusively.

LANGUAGE

You may use either English or Portuguese to respond to open-ended questions in the survey. The most important thing is that you feel comfortable sharing information with us.

THANK YOU

Because we are grateful to you for taking your time to answer this questionnaire, we will be happy to send you the findings of our study by email and to invite you to the workshop in which we will present and discuss the project findings. You will receive a special notice regarding the workshop in due time.

1. Please identify yourself using the pseudonym composed of the following parts:

[day and month of your mother's birthday, e.g., 0112 for Dec.1] [day and month of your birthday][number of children that you have, e.g., 00 if you have none or 03 if you have 3 children]

So, a sample valid pseudonym would be 0112220300.

Please introduce your pseudonym in the textbox below:

About you

First of all, we are interested to learn more about you.

2. Year and Place of birth

Year (From 1995 to 1930)

Country (All world countries)

Area (Capital, City but no Capital, Town, Suburban area or Rural Area)

3. Gender

4. How often do you engage in the following? (5 options scale: Never, Rarely, Sometimes, Often and Constantly)

- I replay memories of the past in my mind
- I reflect on what has happened in my life

- I focus on what is currently happening in my life
- My mind in on the here and now
- I think about what my future has in store
- I focus on my future

5. What best describes your present position within the organization(s) you belong to? Select multiple answers if applicable.

- No formal affiliation
- Chief Executive Officer (CEO)
- Chief Financial Officer (CFO)
- Chief Technology Officer (CTO)
- Chief Operating Officer (COO)
- Chief Innovation Officer (CIO)
- Advisory Board member
- Consultant
- Business Angel
- Venture Capitalist
- Other (please specify)

6. How many more years do you anticipate to stay active professionally? (From 0 to 30 years)

7. How many new companies do you anticipate to start (as a founder or co-founder) from now until the end of your career? (From 0 to 10, and >10)

ATTENTION: PLEASE CONTINUE BY PRESSING “NEXT BELOW”.

THIS QUESTIONNAIRE WILL TAKE APPX 20 MINS OF YOUR TIME

About your Companies

8. How many companies did you found or co-found to date? Please describe them using the drop-down menus. If you founded at least two companies, complete both rows below. If you founded one, complete only the first row and leave the second row blank. Abbreviation "R&D" below refers to research and development.

	Year of Founding (2012 to 1930)	Number of Co-founders (0 to 10, and >10)	Which applies best? (Still owned, IPO, Trade Sell, MBO, LBO, Bankrupt and Other)	Year of your exit from the company (no exit, or from 2012 to 1930)	Reason for your exit (No exit, new job, new company, dismissal, internal conflicts, bankruptcy, sale and other)	Average lifetime spending on R&D as % of total revenues (none, and 1% to 100%)
Your First Company						
Your Second Company						

9. Please describe the activities and intellectual property associated with each of your companies.

	Sector (List of economic sectors)	Which describes your product/service the best? (originally invented/modified for personal use, originally invented/modified for use in a previous job/business, originally invented/modified for personal and job-related use, originally invented/modified for sale to someone else, previously available in the national market, previously available in the national market and other)	Intellectual Property (None, Patents, Trademarks, Copyrights, Other and Various)
Your First Company			
Your Second Company			

10. Did you found more than two companies (Yes or No)

Your other Companies

11. How many more companies did you found or co-found to date? Please describe them using the drop-down menus. Abbreviation "R&D" below refers to research and development.

	Year of Founding (2012 to 1930)	Number of Co-founders (0 to 10, and >10)	Which applies best? (Still owned, IPO, Trade Sell, MBO, LBO, Bankrupt and Other)	Year of your exit from the company (no exit, or from 2012 to 1930)	Reason for your exit (No exit, new job, new company, dismissal, internal conflicts, bankruptcy, sale and other)	Average lifetime spending on R&D as % of total revenues (none, and 1% to 100%)
Your Third Company						
Your Fourth Company						
Your Fifth Company						

12. Please describe the activities and intellectual property associated with each of your companies.

	Sector (List of economic sectors)	Which describes your product/service the best? (originally invented/modified for personal use, originally invented/modified for use in a previous job/business, originally invented/modified for personal and job-related use, originally invented/modified for sale to someone else, previously available in the national market, previously available in the national market and other)	Intellectual Property (None, Patents, Trademarks, Copyrights, Other and Various)
Your Third Company			
Your Fourth Company			
Your Fifth Company			

13. Did you found any other companies (Yes or No)

Career Successes

Please think of your CAREER AS AN ENTREPRENEUR. We are interested to hear about the events that you consider to have been the most important experiences of SUCCESS in your career.

14. Think of an event that you consider to have been an experience of success in your career as an entrepreneur. What happened? When, where, and who was involved? Please describe the event in as much detail as possible.

You are welcome to use English or Portuguese to respond.

Please remember to avoid specifying company names or names of individuals. Refer to these as suppliers, customers, collaborators, colleagues, friends and so on. This will help preserve the anonymity of your response throughout the survey.

If you have nothing to report, please write "NA" to proceed.

15. How important is that experience of success to your overall career?

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
It is extremely important to how successful I am as an entrepreneur today					
It is extremely central to my career					

16. To what extent do you agree with the following statements regarding what you learned from the event/experience you recalled compared to what you knew before the event/experience?

This experience of success allowed me to improve my knowledge of...

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
People and relationships					
Human resource management					
Networking					
Finance					
Fund raising					
Cash management					
Strategy					
Marketing					
Business environment (legal, economic, cultural, technological, etc.)					
Logistics					
Other	Please specify:				

17. What other significant experiences of success did you have throughout your career? Please describe the event you reported and possibly, two other events, second and third most important event, that represented a success in your career as an entrepreneur.

This question requires you to complete at least the first row below, however we would appreciate it greatly if you could think of additional experiences of success to report.

	When did it happen (year of occurrence)? (NA, and from 2012 to 1930)	At the time of the occurrence, the event seemed to be due to (NA, managerial ability, managerial skill, managerial effort, luck, external conditions)	Was it a turning point? (Not at all, to a small extent, somewhat, quite a bit and absolutely)	Did it lead to an important lesson or insight? (Yes or No)	The external environment was (extremely unfavorable, unfavorable, not sure, favorable, very favorable)	The external environment was (extremely risky, risky, not sure, relatively certain and certain)	The internal environment in my company was (extremely unfavorable, unfavorable, not sure, favorable, very favorable)	The life conditions were (Excellent, Good, Fair, Poor, Very Poor)
Success reported								
Additional Success								
Additional Success								

Career Setbacks

18. Think of an event that you consider to have been an experience of setback in your career as an entrepreneur. What happened? When, where, and who was involved? Please describe the event in as much detail as possible.

You are welcome to use English or Portuguese to respond.

If you have nothing to report, please write "NA" to proceed.

19. How important is that experience of setback to your overall career?

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
It is extremely important to how successful I am as an entrepreneur today					
It is extremely central to my career					

20. To what extent do you agree with the following statements regarding what you learned from the event/experience you recalled compared to what you knew before the event/experience?

This experience of setback allowed me to improve my knowledge of...

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
People and relationships					
Human resource management					
Networking					
Finance					
Fund raising					
Cash management					
Strategy					
Marketing					
Business environment (legal, economic, cultural, technological, etc.)					
Logistics					
Other	Please specify:				

21. What other experiences of setback did you have throughout your career? Please describe the event you reported and possibly, two other events, second and third most important event, that represented a success in your career as an entrepreneur.

This question requires you to complete at least the first row below, however we would appreciate it greatly if you could think of additional experiences of success to report.

	When did it happen (year of occurrence)? (NA, and from 2012 to 1930)	At the time of the occurrence, the event seemed to be due to (NA, managerial ability, managerial skill, managerial effort, luck, external conditions)	Was it a turning point? (Not at all, to a small extent, somewhat, quite a bit and absolutely)	Did it lead to an important lesson or insight? (Yes or No)	The external environment was (extremely unfavorable, unfavorable, not sure, favorable, very favorable)	The external environment was (extremely risky, risky, not sure, relatively certain and certain)	The internal environment in my company was (extremely unfavorable, unfavorable, not sure, favorable, very favorable)	The life conditions were (Excellent, Good, Fair, Poor, Very Poor)
Setback reported								
Additional Setback								
Additional Setback								

About your first company

22. When you established your first company, to what extent were the following reasons important for you?

	Not Important	Little important	Somewhat important	Important	Very Important
To achieve a higher position for myself in society					
To be respected by friends					
To control my own time					
To have considerable freedom to adapt my own approach to work					
To develop an idea for a product/service					
To continue learning					
To continue a family tradition					
To follow the example of a person I admire					
To contribute to the welfare of my relatives					
To contribute to the welfare of people with the same background as me					
To give myself and my family security					
To have high earnings					

23. To what do you agree with the following statements regarding your very first company?

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
My product/service was/is very innovative					
My product/service had/has few competitors					

24. How many top managers were recruited to your company over time? (0 to 10, or >10)

25. Please answer Yes or No.

- Did you have a mentor who helped you set up your first company?
- Did you write a formal business plan of your first company?
- Did you finance company related research and development activities prior to founding the company?

26. What lessons did you learn during your FIRST company experience? Please describe the event(s) that allowed you to learn something important using the drop-down menus below.

This question requires you to complete at least the first row below, however we would appreciate it greatly if you could think of multiple events that allowed you to learn something important during your entrepreneurial path.

	At the time of the occurrence, the event seemed to be due to (a success, a failure or ambiguous)	Year (from 2012 to 1930)	The lesson/insight referred to (product/service, people/relationships, finance/accounting, fund raising, strategy, marketing, logistics, business environment or other)	Were issues of personal/business ethics involved? (Yes or No)	The external environment was (extremely unfavorable, unfavorable, not sure, favorable, very favorable)	The external environment was (extremely risky, risky, not sure, relatively certain and certain)	The internal environment in my company was (extremely unfavorable, unfavorable, not sure, favorable, very favorable)	The life conditions were (Excellent, Good, Fair, Poor, Very Poor)
Event 1								
Event 2								
Event 3								

27. Did the final business model of your FIRST company change compared to the business model at the start of company operations and why? You may select multiple answers below.

- No, it did not change
- Yes, the initial model was not profitable enough
- Yes, competitors could easily copy the initial business model
- Yes, investors asked us to change
- Yes, the company started losing money
- Yes, due to external pressures (from clients, suppliers, etc.)
- Yes, because the new business model was better
- Yes, due to other reasons

28. To what extent would you agree with the following statements about the EXTERNAL ENVIRONMENT in the FIRST YEAR of your FIRST Company's operations?

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
It was a time of economic boom/prosperity					
The failure rate of firms in my industry was high					
My industry was very risky such that one bad decision could easily threaten the viability of my business					
Competitive intensity was high in my industry					
Customer loyalty was low in my industry					
Severe price wars were characteristic of my industry					
Low profit margins were characteristic of my industry					
Actions of competitors were generally easy to predict					
The set of competitors in my industry remained relatively constant over the last 3 years					
Product demand was easy to forecast					
Customer requirements/preferences were easy to forecast					
My industry was very stable with little change resulting from economic, technological, social or political forces					
It was a time of economic crisis					
In most ways the external environment was ideal for my business					
The external environment was extremely favorable					

29. To what extent do you agree with the following statements about your PERSONAL SITUATION during the FIRST YEAR of your FIRST company's operations?

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
In most ways my life was close to my ideal					
The conditions of my life were excellent.					

30. Did the business model of your FIRST company change more than once? (Yes or No)

Business Model Information

31. Please describe changes in the business model using the drop-down menus.

If the first change was the only change of business model, leave the second row blank and proceed with the survey.

	Year (from 2012 to 1930)	How long did it take to make the new model operational? (less than 1 year, 1 to less than 2 years, 2 to less than 3 years, 3 to less than 4 years, or 4 years or more)	The new model was... (Very different, different, somewhat different, similar or very similar)	The new model was... (Very innovative, innovative, somewhat innovative, common, or very common)
First change of business model				
Last change of business model				

32. Please describe your FIRST company in terms of number of people employed, yearly revenues and intellectual property.

Please leave the second row blank if your company was only operational for a year or less than a year.

	Number of employees (less than 10, 10 to less than 25, 25 to less than 50, 50 to less than 100, 100 to less than 250, or more than 250)	Yearly Revenues (below 50k, 50k to less than 150k, 150k to less than 500k, 500k to less than 1M, 1M to less than 5M, 5M to less than 20M, 20M to less than 50M, or 50M or more)	Intellectual Property (None, Patents, Trademarks, Copyrights, Other and Various)
First change of business model			
Last change of business model			

33. When did your FIRST company reach the break-even point?

- Never
- In year 1
- In year 2
- In year 3
- In year 4
- In year 5 or later

34. Please think of the business environment and your personal situation THROUGHOUT THE LIFETIME of your FIRST company.

Was the EXTERNAL ENVIRONMENT and your PERSONAL SITUATION throughout the lifetime of your first company much better than in the company's first year of operation?

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
The external environment throughout the lifetime of my first company was much better than in the company's first year of operation					
My personal situation throughout the lifetime of my first company was much better than in the company's first year of operation					

35. Has your FIRST company received funding from business angels? (Yes or No)

On Business Angels

36. To what extent do you agree with the following statements about business angel(s) in terms of your FIRST company?

Business angel(s) provided valuable advising on matters of ...

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
People and relationships					
Human resource management					
Networking					
Finance					
Fund raising					
Cash management					
Strategy					
Marketing					
Business environment (legal, economic, cultural, technological, etc.)					
Logistics					
Other	Please specify:				

37. To what extent do you agree with the following statements about business angel(s) in terms of your FIRST company?

Business angel(s) were very helpful in building our business relationships with ...

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
Clients					
Suppliers					
Investors					
Consultants					
Fund Lawyers					
Researchers, scientists					
Other	Please specify:				

38. How much did business angels help in recruiting your top management team (search, advice, interviewing, etc.)?

- A lot
- Significantly
- Somewhat
- Little
- Very Little

39. On average, how often did you interact with business angels?

	Frequency (Almost every day, several times per week, 3-4 times per month, 1-2 times per month, 3-6 times per year, Very rarely, never)
Please consider all interactions: face to face, by telephone, email or skype	

40. To what extent do you agree with the following statements regarding what you knew at the start of your career as an entrepreneur when your FIRST company began operations.

I had profound knowledge of ...

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
People and relationships					
Human resource management					
Networking					
Finance					
Fund raising					
Cash management					
Strategy					
Marketing					
Business environment (legal, economic, cultural, technological, etc.)					
Logistics					
Other	Please specify:				

**41. How many rounds of external funding did you undergo with your FIRST company?
Please describe the number of rounds that apply using the drop-down menus.**

	Year (from 2012 to 1930)	Lead Investor (Founders, Family/Friends, Business Angels, Venture Capitalists, Corporations, Banks, Various, or Other)	Second largest investor (Founders, Family/Friends, Business Angels, Venture Capitalists, Corporations, Banks, Various, or Other)	Total amount of external funding (below 10k, 10k to less than 50k, 50k to less than 100k, 100k to less than 250K, 250k to 1M, 1M to less than 1.5M, 1.5M to less than 5M, 1.5M to less than 3M, 3M to less than 5M, or 5M or more)	Your end-of-round ownership (less than 5%, 5% to 10%, 10% to 20%, 20% to 30%, 30% to 40%, 40% to 50%, 50% to 60%, 60% to 70%, 70% to 80%, 80% to 90%, or 90% to 100%)
Round A					
Round B					
Round C					
Round D					
Bridge Financing					
IPO					
Others					

42. Has your FIRST company received funding from venture capitalists? (Yes or No)

On Venture Capitalists

43. To what extent do you agree with the following statements about venture capitalists(s) in terms of your FIRST company?

Venture Capitalist(s) provided valuable advising on matters of ...

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
People and relationships					
Human resource management					
Networking					
Finance					
Fund raising					
Cash management					
Strategy					
Marketing					
Business environment (legal, economic, cultural, technological, etc.)					
Logistics					
Other	Please specify:				

44. To what extent do you agree with the following statements about venture capitalist(s) in terms of your FIRST company?

Venture capitalist(s) were very helpful in building our business relationships with ...

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
Clients					
Suppliers					
Investors					
Consultants					
Fund Lawyers					
Researchers, scientists					
Other	Please specify:				

45. How much did venture capitalists help in recruiting your top management team (search, advice, interviewing, etc.)?

- A lot
- Significantly
- Somewhat
- Little
- Very Little

46. On average, how often did you interact with your venture capitalist(s)?

	Frequency (Almost every day, several times per week, 3-4 times per month, 1-2 times per month, 3-6 times per year, Very rarely, never)
Please consider all interactions: face to face, by telephone, email or skype	

Your overall career

47. Please think of your career as an entrepreneur in terms of 3 main periods: early, middle and late. These stages may be very short or last for a number of years.

If you believe your career has not reached a particular stage yet, please fill out only the rows that apply (for example, early only or, early and middle).

Describe these stages using the drop-down menus below.

	Early	Middle	Late
Year of Start (2012 to 1930)			
Duration in years (1 to 25)			
My career (improved, suffered a decline, was stable, changed a lot)			
My career satisfaction was (very low, low, moderate, high, or very high)			
Satisfaction with my life was (very low, low, moderate, high, or very high)			
I learnt (a great deal, a lot, somewhat, little, or very little)			
Did you act as a business angel (Yes or No)			
Did you mentor, teach, or advise other on entrepreneurship? (Yes or No)			

48. Please tell us about your marital status, earnings and education.

	Marital Status (single, in a relationship, married, widowed, or divorced)	Yearly Income (below 30k, 30k to less than 50k, 50k to less than 75k, 75k to less than 150k, 50k to less than 300k, or 300k or more)	Education (Below High School, High School, University, or Graduating Education – MSc, PhD, or executive courses)
At the time of founding your first company			
Currently			

49. Please provide information regarding the last two degrees you obtained.

If you do not have university education, please choose "does not apply" in answering the first row of questions and proceed with the survey.

	Year of Completion (Does not apply, or 2012 to 1930)	Area of study (Does not apply, and a series of different areas)	Degree (Does not apply, Bachelor's, Executive Education, MBA, DBA, MSc, MA, PhD, or other)
University			
Graduate Education 1			
Graduate Education 2			

50. Prior to founding your first company, how many years of experience did you have and in what role?

	Years	Area of study (Does not apply, and a series of different areas)
In the same industry		
In a different industry		

Final Details

51. To what extent do you agree that the following statements describe you?

	Strongly Disagree	Disagree	Not Sure	Agree	Strongly Agree
In uncertain times, I usually expect the best.					
If something can go wrong for me, it will.					
I am always optimistic about my future.					
I hardly ever expect things to go my way.					
I rarely count on good things happening to me.					
Overall, I expect more good things to happen to me than bad.					

We would like to keep in touch, inform you about project findings, and be able to invite you to the workshop summarizing these findings. If you are interested, please drop us an email to entrepreneur.portugal@gmail.com mentioning "survey participant" in the subject line.

52. Please leave any comments you may want to share regarding this survey in the textbox below.

Thank you very much for your time and effort!

