

## Identifying the main Individual Factors Influencing Entrepreneurial Decision making Biases: A Qualitative Content Analysis Approach

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### Abstract

Entrepreneurial decisions are one of the most important functions of entrepreneurs so as to manage their ventures on a daily basis. These decisions are not fully rational and because of various factors like cognitive and personal characteristics, environmental and firm-related issues, entrepreneurial decisions are prone to biases. Decision making biases has become a favorable research topic among entrepreneurial scholars. Decision making biases are responsible for lots of entrepreneurial successes as well as failures. Being the conjunction of entrepreneurship, management and psychology, there is some ambiguity regarding the main factors influencing the genesis of these biases among entrepreneurs. By reviewing the body of literature on factors affecting these biases, one comes to the conclusion that individual factors play the major role in this regard. Coming to the conclusion that there are some gaps regarding the nature of these individual factors, this paper conducted a qualitative content analysis approach by studying entrepreneurial narratives resulting from interviews with 20 entrepreneurs. According to our findings, self-efficacy, personal optimism and risk taking propensity are the main individual factors influencing the genesis of entrepreneurial decision making biases.

**Key words:** Entrepreneur, Decision Making Biases, Self-Efficacy, Optimism, Risk Taking

### Introduction

Decision making is one of the most important entrepreneurial tasks in launching and managing their enterprises. A lot of factors affect entrepreneurial decisions. Entrepreneurial decisions are sometimes irrational. Rational decision making processes need adequate data and information as well as enough time to process them. Given the environment of

entrepreneurs' activities, this process does not happen for entrepreneurs, especially in the beginning phases of their enterprises (Frese et al, 2000).

Time pressure and lack of data are two main determinants of entrepreneurial decision making environment (Harris, 1998). Because of not having enough experience as well as sufficient staff on one hand and acting in a mostly uncertain environment, entrepreneurial decisions, especially in the beginning phases of their activities, are prone to heuristic (cognitive shortcuts) and biases (Busenitz & Barney, 1997). Shefrin (2007) defined biased decisions as decision made under the influence of an opinion, a belief or a concept.

Tversky and Kahneman (1974) emphasized the importance of studying decision making biases because of the need to learn more about entrepreneurial mindset and decision making process Limitations in information processing (Abelson and Levy, 1985), shortage of needed resources and time to follow rational decision making processes (Simon, 1979), vast use of heuristics (Manimala, 1992), and a lot of other factors have been introduced as the main causes of entrepreneurial decision making biases. A lot of researchers have been trying to identify the main causes of entrepreneurial decision making biases.

Baron (1998) identified individual factors as the main drivers of some of the most important entrepreneurial decision making biases. According to Baron, entrepreneurs engage in regretful thinking and counterfactual thinking and they are more prone to some biases like escalation of commitment and planning fallacy. Therefore, Baron links some entrepreneurial decision making biases. For example, Entrepreneurs ignore relevant, similar past experiences and therefore fall into planning fallacy, a major bias. Entrepreneurs, because of some factors, mainly individual and psychological, are prone to escalation of commitment bias.

Baron (1998) links the genesis of entrepreneurial decision biases to their specific cognitive characteristics (Koellinger et al, 2007), while studying entrepreneurial overconfidence, another major decision making bias in entrepreneurs, introduced individual factors as the main causes of its genesis. Intuition and cognition (Kaish and Gilad, 1991), heuristics (Manimala, 1992) and affect (Baron, 2008) are other main factors contributing to entrepreneurial decision making biases.

In general, though the bulk of work on entrepreneurial decision making biases seems satisfactory, there is still some ambiguity regarding the main factors affecting these biases. Though it could be concluded that individual factors are the main causes of decision making biases among the entrepreneurs, there is a gap about the nature and characteristics of these individual factors. On the other hand, most past researches in this have focused on the major causes of single biases, not entrepreneurial decision making biases as a whole. In order to fill this gap, this paper tends to study the main individual factors influencing the genesis of four main entrepreneurial decision making biases according to the literature: overconfidence, escalation of commitment, planning fallacy and illusion of control.

### **Literature review**

Decision making biases are a major element of entrepreneurial decisions. Extensive use of heuristics (Manimala, 1992), decision uncertainty and decision complexity (Busenitz and Barney, 1997), a combination of individual and organizational factors (Forbes, 2005) and a lot of other factors contribute to the formation of these biases.

Decision making biases have direct impacts on the success or failure of entrepreneurial decisions. These biases make entrepreneurs interpret equivocal situations more favorably (Palich and Bagby, 1995), lead them to enter markets while unprepared (Camerer and Lovo, 1999) and cause them to underestimate risk in their venture decisions (Simon, Houghton and

Aquino, 2003). In this section we review the literature on four main entrepreneurial decision making biases.

### **Overconfidence**

Oskamp (1965) introduced overconfidence as a miscalibration of accuracy in clinical psychologists' judgments. His main concern was the field of psychology. Fischhoff et al (1977) further examined overconfidence as subjective miscalibration of probabilities. In the field of psychology, overconfidence is a difference between accuracy and probability. Cognitive, psychological and motivational factors are the main causes of overconfidence (Russo and Schoemaker, 1992).

Regarding the field of management, Bazerman (1994) defined overconfidence as "the tendency of individuals to overestimate the correctness of their initial estimations in answering average to difficult questions". Overconfidence has been introduced as one of the most important entrepreneurial decision making biases, affecting a wide range of entrepreneurial decisions. Cooper et al (1988), after a comprehensive scrutiny of the topic, examined the role of overconfidence in entrepreneurial unprepared entry and subsequent failure.

Koellinger et al (2007) divide overconfidence into three distinctive categories of overestimating one's judgment, inaccuracy in judging one's predictions and overestimation of one's skills and expertise. They concluded that overconfidence is the main driver of entrepreneurial entry decisions. Rietveld et al (2013) concluded that entrepreneurs are more overconfident than others. Regarding the main causes of overconfidence, Langer (1975) concluded that successful experiences and the difficulty of the tasks lead to overconfidence in individuals.

Forbes (2005) did one of the most comprehensive studies to identify the main factors affecting overconfidence in entrepreneurs and concluded that the younger entrepreneurs, the entrepreneurs managing smaller enterprises and the ones who are higher in self-efficacy as well as the entrepreneurs having founded their businesses personally are more overconfident than others. In another important study, affect, emotions and joy are the main causes of overconfidence among entrepreneurs (Koellinger and Michl, 2012)

### **Escalation of commitment**

Allocating resources to the courses of actions and plans that don't have chances of success anymore especially after receiving corroborating feedbacks has been defined as escalation of commitment (Staw and Ross, 1987). Baron (1998) concluded that escalation of commitment is a cognitive characteristic of entrepreneurs and a combination of sociological and psychological factors lead to the formation of this bias among entrepreneurs.

Feeling responsibility for initial decision, reluctance to make mental and cognitive efforts all over again, concerns about loss of face among others, especially stakeholders and strong desire to justify one's initial decisions are the main causes affecting this bias (Staw and Ross 1987; Bobocel and Meyer 1994). Escalation of commitment is a very common decision making bias in individuals, leading to prosperous as well as catastrophic decisions.

### **Planning fallacy**

Choosing strategies and making plans without first assessing and evaluating the one's weaknesses and strengths as well as possible risks leads to planning fallacy (Kahneman and Lovallo, 1993). Baron (1998) hypothesized that entrepreneurs are prone to this bias because they are forward looking and they tend to ignore relevant past experiences. On the other

hand, entrepreneurs, like most individuals, attribute positive results to their own prowess and plans and ascribe negative outcomes to other factors beyond their controls, thus, becoming more susceptible to fall into planning fallacy (Baron, 1998).

### **Illusion of control**

Optimistic consideration of having control over matters beyond one's control, matters that chance also plays an important role, has been introduced as illusion of control (Shefrin, 2007). Though very important in nature and having the potential to affect a vast variety of entrepreneurial decisions, illusion of control has been given scant attention from researchers. Most important researches on the topic have emphasized the role of illusion of control in entrepreneurial risk perceptions, especially regarding new venture decisions (Simon et al, 2003). Psychological factors seem to be the main determinants influencing the genesis of this bias.

By reviewing the literature on these biases, one comes to the conclusion that a lot of individual factors have been hypothesized and examined as the main causes of these biases, but there is some serious ambiguity regarding the exact nature of these individual factors.

### **Methodology**

As the purpose of this research was to study the main individual Factors influencing Entrepreneurial Decision Making Biases, a qualitative content analysis technique was adapted. the process of qualitative content analysis begun during the early stages of data collection To help move back and forth between concept development and data collection, and this help direct subsequent data collection toward sources that are more useful for addressing the research questions (Miles & Huberman, 1994). We follow a set of systematic procedures for supporting valid and reliable inferences from data (Lincoln and Guba, 1985; Hsieh and Shannon, 2005; Weber, 1990).

### **Data collection and Preparing**

Purposeful sample approach was used and data collections were choose which provide usable text and images for theory development. This means that the sampling was intentional and focus was on the formulation of the theory (Marshall, 1996; Creswell, 2008; Creswell, 2005, p405). The data used in this study came from interviews conducted on Iranian techno-entrepreneurs and the sample size was limited by data gathering (Eisenhardt, 1989, p.545). Field observations and in-depth interviews were used as data collection techniques and Semi-structured interview technique was adapted. In semi-structured interview, we designed questions so as to gather depth information from the interviewee  
Data transformed into written text before analysis started. Main questions from the interview guide are transcribed. Interviews transcripts in order to reveal or model people's information related behaviors and thoughts.

### **Developing Categories and a Coding Scheme**

The unit of analysis is the basic unit of text to be classified during content analysis. Messages are unitized before they can be coded; individual themes were used as the unit for analysis. An instance of a theme might be expressed in a single word, a phrase, a sentence, a paragraph, or an entire document. We were primarily looking for the expressions of an idea. We might assign a code to a text chunk of any size, as long as that chunk represents a single theme or issue of relevance to our research questions.

Categories and a coding scheme can be derived from the data and previous related studies, and theories. We generated an initial list of coding categories from the previous studies, and modify it within the course of the analysis as new categories emerge inductively (Miles & Huberman, 1994).

Qualitative content analysis allows us to assign a unit of text to more than one category simultaneously (Tesch, 1990). Even so, the categories in our coding scheme should be defined in a way that they are internally as homogeneous as possible and externally as heterogeneous as possible (Lincoln & Guba, 1985).

### **Testing Coding Scheme on a Sample of Text**

We developed and validate our coding scheme early in the process. The best test of the clarity and consistency of your category definitions is to code a sample of our data. After the sample is coded, the coding consistency was checked, in most cases through an assessment of inter-coder agreement (Schilling, 2006). Coding sample text, checking coding consistency, and revising coding rules is an iterative process and continued until sufficient coding consistency was achieved (Weber, 1990).

### **Coding All the Text**

When sufficient consistency was achieved, the coding rules were applied to the entire corpus of text. During the coding process, we checked the coding repeatedly, to prevent “drifting into an idiosyncratic sense of what the codes mean” (Schilling, 2006). Because coding will proceed while new data continue to be collected, it’s that new themes and concepts will emerge and will need to be added to the coding manual.

### **Assess Coding Consistency**

After coding the entire data set, we rechecked the consistency of our coding. It is not safe to assume that, if a sample was coded in a consistent and reliable manner, the coding of the whole of text is also consistent. Human coders are subject to fatigue and are likely to make more mistakes as the coding proceeds. New codes may have been added since the original consistency check. Also, the coders’ understanding of the categories and coding rules may change subtly over the time, which may lead to greater inconsistency (Miles & Huberman, 1994; Weber, 1990). For all these reasons, we rechecked our coding consistency.

### **Draw Conclusions from the Coded Data and Report Findings**

This critical step involves making sense of the themes or categories identified, and their properties. We made inferences and present our reconstructions of meanings derived from the data. We explored the properties and dimensions of categories, uncovered patterns, against the full range of data (Bradley, 1993).

The report of the analytical procedures and processes must be as completely and truthfully as possible (Patton, 2002). For insuring the reliability of the study we established some methods. Qualitative content analysis uncovers patterns, themes, and categories important to a social reality. It doesnot produce counts and statistical significance therefor Presenting research findings from qualitative content analysis is challenging. It is a common practice to use typical quotations to justify conclusions (Schilling, 2006). We strive for a balance between description and interpretation. Description gives your readers background and context and thus needs to be rich and thick (Denzin, 1989).

Qualitative research is fundamentally interpretive, and interpretation represents our personal and theoretical understanding of the phenomenon under study. An interesting and

readable report “provides sufficient description to allow the reader to understand the basis for an interpretation, and sufficient interpretation to allow the reader to understand the description” (Patton, 2002, p.503-504).

Reliability in this study was achieved by two methods. First, by the use of multiple coders and discrepancies between the coders were minimal. Second, by selecting disclosure categories from well-grounded relevant literature, and clearly defining them (Milne and Adler, 1999; Guthrie et al., 2003). For addressing Validity of our study we reviewed relevant documents and research data about the biases to provide triangulation of thematic analysis.

Member checking was implemented by providing them with a transcript of their own Interview and the matrix of all Interview data. An external audit was implemented where the overall research process and analysis was audited by a third party expert researcher (Creswell, 2003, Creswell, 2005; Weerawardena, and Mort, 2006).

**Research Findings**

We conducted interviews until after 20 interviews we reached saturation. Table 1 shows demographic characteristics of our sample entrepreneurs. As it shows most of these entrepreneurs are male (75%) and only 25% were female. 11 person (55%) are between 31-50 years old and 25 % are under 30 years old and 20% are 50-70 years old. The most common degree is bachelor degree (45%) then was Master degree (30%) , 15% have high school degree and 2 of them (10%) have PhD degree.

Table 1 Demographic characteristics

		No.	Percentage
Gender	Male	15	75.0
	Female	5	25.0
Age	<=30	5	25.0
	31-50	11	55.0
	50-70	4	20.0
Educational Level	high school degree	3	15.0
	Bachelor degree	9	45.0
	Master degree	6	30.0
	PhD	2	10.0

After the interview were transcribed, we read them and Codes were extracted. During open coding stage, data were fragmented to their smallest unit and their categories were identified. This process helped us by focusing on the data, ideas and concepts which are inductively extracted. By using open coding a lot of themes were extracted.

Then in axial coding stage the codes identified in open coding stage were compared and similar categories were merged and finally 3 categories were identified in selective coding (see table 2). Self-Efficacy; Personal Optimism, and Risk-taking Propensity are the main Individual Factors influencing Entrepreneurial Decision Making Biases.

Table 2 Individual Factors influencing Entrepreneurial Decision Making Biases

factor	Frequency	Percent
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Self-Efficacy	14	70.0%
Personal Optimism	16	80.0%
Risk-taking Propensity	13	65.0%

### Category 1: Self-efficacy

Biased entrepreneurs place too much emphasis on their personal abilities and expertise. Entrepreneurs having belief in their abilities and skills in face of unforeseen events are high in self-efficacy. So self-efficacy was identified as an Individual Factors influencing Entrepreneurial Decision Making Biases.

An entrepreneur for example said: "one of my decisions was not sound and I found out soon but because of some environmental factors I did not change it. On the other hand, I thought that my knowledge could handle any problem". Another entrepreneur commented: "I make decisions based on my own judgment and expertise, because, In the face of unforeseen events where there isn't any other resort, I always have belief in myself".

The other entrepreneur observed: "In the initial phases of my career I mostly relied on my own judgment to make decisions because I was an optimist by nature and had faith in my personal abilities. I had enough knowledge about my profession and I tried to get real time data. I thought nothing could stop a determined entrepreneur. But over time I realized that many factors, including luck, are involved."

Another entrepreneur observed: "My first enterprise mostly failed because I placed too much emphasis on my personal abilities and underestimated environmental factors, thus I overestimated my ability to accomplish some huge goals in a short span of time which sealed my fate".

### Category 2: personal optimism

Personal optimism was other factors which influence entrepreneur decisions biases, they overestimating the positive cues and putting too much Hope in the future were other determinants. For example one of our entrepreneurs said: In the course of my career I think I relied too much on governmental help, in retrospect I regret that optimism". Another of our entrepreneurs said: "I usually have faith in the future, nobody knows what the future holds, but as an entrepreneur I have always been optimistic regarding the future".

### Category 3: Risk-taking Propensity

For example one entrepreneur said:"... I should admit that I risk more than others, especially our competitors. I made decision that other people may not but this business needs risk and if you couldn't take risk you can't growth". Other interviewee said: "in some occasions, in our firm we can't make sure that all the relevant date are considered and analyzed, sometimes you should take risk and make a decision".

### Discussion

Entrepreneurial decisions play substantial roles in various entrepreneurship-related processes. Biases are major parts of entrepreneurial decision making (Busenitz and Barney, 1997). Decision making biases have important effects on entrepreneurial decisions and on the fate of entrepreneurial ventures, subsequently. A lot of individual, organizational as well as environmental factors could result in entrepreneurial biased decisions. Some scholars have even hypothesized that biases are related to some entrepreneurial characteristics (Baron, 1998).

The main goal of this paper was to identify the main individual factors influencing the genesis of entrepreneurial decision making biases. After conducting a qualitative content analysis technique by reviewing the narratives resulted from elaborate interviews with 20 entrepreneurs, we came to the conclusion that self-efficacy; personal optimism and risk taking propensity are the main individual factors affecting entrepreneurial decision making biases.

We did not study the possible relationship between some main individual factors like age or gender and decision making biases among the interviewees. The effects of one very important individual factor, experience, was ambiguous, meaning that experience was influential in the genesis of biases among some entrepreneurs, not all of them. On the other hand, experience did affect some biases, not all of them, thus, we were not able to come to any categorical conclusions about the role of experience in the genesis of entrepreneurial decision making biases. With regard to other significant and related researches, the findings of Forbes (2005) that self-efficacy is influential in the formation of overconfidence was corroborated. This paper also did not study the possible relationship between joy, emotions and affect on one hand and the decision making biases on the other hand. This could be a very important research topic in the future.

### **Implications for future researches**

- The main concern of this paper was to identify the main individual causes of entrepreneurial decision biases; future researches should study organizational as well as environmental determinants of entrepreneurial decision making biases.
- This paper did not study the possible relationship between some important individual factors like age and gender on one hand and decision making biases on the other hand, future researches need to shed more lights on this possible relationship.
- Decision making biases have various effects on different stages of the entrepreneurial process. For example, overconfidence is most influential in entrepreneurial entry decisions (Koellinger et al, 2007). Future researches should study entrepreneurial decision making biases in different stages of entrepreneurial processes like venture creation decisions and exit decisions.
- A lot of scholars have hypothesized that there is strong relationship between heuristics (cognitive short-cuts) and decision making biases, but there is scant studies regarding this possible strong relationship between heuristics and biases in the field of entrepreneurship. Future researches need to study this topic, too.
- Biases have positive as well as negative effects on entrepreneurial decisions and subsequently, the fate of enterprises. Entrepreneurial scholars need to shed more lights on this issue and try to categorize the possible positive and negative effects of decision making biases in the field of entrepreneurship.

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