What Factors Contribute to Entrepreneurs’ Decision Making Biases? 
A Comprehensive Study

Kambiz Talebi¹, Pouria Nouri², Abdolah Ahmadi Kafeshani³

Abstract
Entrepreneurial decisions are of great value as well as importance in the field of entrepreneurship by playing
an exceptional role in all major entrepreneurial activities. Given the unique characteristics of entrepreneurial
activities, entrepreneurs are prone to decision making biases in their decisions. Because these biases directly
affect enterprises, they are of crucial importance in the field of entrepreneurship. On the other hand, because
these biases emanate from a lot of important factors and differ from one person to another (given their
subjective nature), their identification needs an elaborate study. Having concluded that identifying the main
factors influencing entrepreneurial decision making biases is vital for entrepreneurship-related studies and
there is no comprehensive research study in this regard, this paper conducted a grounded theory approach by
interviewing 20 Iranian entrepreneurs. According to our findings, personal (individual), environmental and
organizational factors are the main categories influencing the genesis of decision making biases in
entrepreneurs.

Keywords: Entrepreneurs, Decision making biases, Overconfidence, Escalation of commitment, Planning
fallacy, Illusion of control, Status quo

1. Introduction
Entrepreneurs are the main drivers of economic growth and prosperity in societies. One of the most
important entrepreneurial functions in order to achieve their goals is decision making, which is definitely the
backbone of all entrepreneurial activities. Entrepreneurs must deal with two major problems in their decision
making processes: (Harris, 1998)
- lack of needed time
- shortage of vital resources

Entrepreneurs also have some specific cognitive characteristics which influence their decisions (Baron,
1998). They make the most of their intuition (Kaish and Gilad, 1991), they use cognitive shortcuts
(heuristics) in their decisions extensively (Manimala, 1992) and have not develop their unique decision
making rules and procedures, especially in the initial phases of their enterprises (Busenitz and Barney, 1997).
All these factors, combined with other determinants, lead to biases in entrepreneurs’ decisions. According to
Shefrin (2007) biased decisions are decisions made under the influence of a belief, an opinion or a concept.
Decision making biases are so rife in entrepreneurial decision that it has been hypothesized that those who
are more prone to biases are more probable to become entrepreneurs (Busenitz and Barney, 1997). A lot of
biases like overconfidence, status que, escalation of commitment, illusion of control and planning fallacy
have been identified in entrepreneurial decisions. Most of the literature on entrepreneurial decision making
biases is about their impacts, like underestimation of risk in new venture decisions (Simon, Houghton and
Aquino, 2000) or unprepared entry and subsequent failure (Koellinger, Minniti and Schade, 2007), therefore

¹Associate Professor Faculty of Entrepreneurship University of Tehran North Kargar, Tehran, Iran
²Phd Candidate Faculty of Entrepreneurship University of Tehran North Kargar, Tehran, Iran
³Phd Candidate Faculty of Entrepreneurship University of Tehran North Kargar, Tehran, Iran
one could conclude that the literature and research on the effects of entrepreneurial decision making biases is a lot more richer than the literature on the causes of these biases. Forbes (2005), Koellinger et al (2007) and Koellinger and Michl (2012) are among the main papers that have studied the main causes of biases among entrepreneurs, though all of these papers have limited their attention to overconfidence, namely the most common entrepreneurial decision making bias. Forbes (2005) concluded that a combination of individual factors like self-efficacy and some firm-related factors leads to biases in entrepreneurs. According to Koellinger et al (2007) individual factors are the main drivers of decision making biases in entrepreneurs. Joy and affect also lead to overconfidence in entrepreneurial decisions (Koellinger and Michl, 2012). In a recent paper, Talebi, Nouri and Kafeshani (2014) have focused on the main individual factors leading to entrepreneurial decision making biases. In conclusion and by reviewing the literature on entrepreneurial decision making biases, there seems to be a huge gap regarding the main factors influencing the causes of decision making biases among entrepreneurs and the current paper intends to fill this important gap. In the following sections we render our literature review, research methodology, findings, discussion and implications for future researches, respectively.

2. Literature Review

Entrepreneurs are prone to decision making biases and these have major effects on their decisions and their ventures, subsequently. Busenitz and Barney (1997) concluded that decision complexity and decision uncertainty lead to biased decisions among entrepreneurs. Baron (1998) ascribed some main decision making biases like escalation of commitment and planning fallacy in entrepreneurs to entrepreneurial unique cognitive characteristics. Forbes (2005) studied overconfidence and identified individuals and organizational factors as its main drivers. Koellinger et al (2007) identified individual factors as main determinants of overconfidence. Koellinger and Michl (2012) identified joy and affect as the main causes of overconfidence. By reviewing the bulk of literature on decision making biases among entrepreneurs, one could come to the conclusion that:

- Individual factors like specific cognitive characteristics have been identified as the main factors influencing entrepreneurial decision making biases.
- Most of studies have concentrated on one specific bias, mostly overconfidence. Thus, there seems to be a huge gap regarding the main contributors to entrepreneurial decision making biases as a whole.
- Most papers have studied the effects of biases like unprepared entry and new venture decisions and there is few studies regarding the main contributors to decision making biases among entrepreneurs.

In the following, we review the literature on the main entrepreneurial decision making biases.

Overconfidence

Overconfidence has been identified as one of the most common decision making biases in individuals, generally and in entrepreneurs, specifically. Overconfidence is the miscalibration of accuracy in one’s judgment (Oskamp, 1965). In the field of management, Bazerman (1994) defined overconfidence as “the tendency of individuals to overestimate their correctness of their initial estimations in answering average to difficult questions”. Overconfidence is by far the most researched decision making bias in the field of entrepreneurship. This bias is the main cause of entrepreneurial unprepared entry and subsequent failure (Cooper et al, 1988; Koellinger et al, 2007). A combination of organizational as well as individual factors influences the genesis of overconfidence (Forbes, 2005). By reviewing the literature on entrepreneurial overconfidence, one may conclude that its effects have been more interesting for scholars than its causes.

Escalation of commitment

Escalation of commitment may have been one of the main causes of American army being more and more entangled in Vietnam War. From then on, this bias has been given more and more attention from scholars of various fields of studies. Staw (1981) did some great research on this bias. Reluctance to lose face among others (social factors) and not wanting to concede defeat to themselves (psychological factors) are the
main contributors to this bias (Staw and Ross, 1987). In line with these findings, Baron (1998) concluded that not wanting to take the process of decision making all over again is another factor leading to escalation of commitment in entrepreneurs. On the other hand, entrepreneurs, especially in small businesses and in the beginning phases of their activities, do not have any major guide to make decisions and need to rely on themselves (Forbes, 2005) and because of their specific characteristics like risk taking propensity and optimism, do not want to change their decisions and strategies easily, thus being more prone to escalation of commitment.

**Planning Fallacy**

Planning fallacy was introduced by Kahneman and Tversky (1979) and deals with the necessary time to complete various tasks. Individuals prone to planning fallacy either overestimate the amount of work they could accomplish in a given time or underestimate the needed time to fulfill a given task (Kahneman and Lovallo, 1993). Entrepreneurs are optimistic and do not consider relevant past experiences and deal with similar situations as unique. They also contribute failures to factors beyond their control and ascribe successes to their own characteristics; these two factors are the main drivers of planning fallacy among entrepreneurs (Baron, 1998).

**Illusion of Control**

Langer (1975) has named the tendency of individuals to overestimate their ability to have control over outcomes and events as illusion of control. In the field of entrepreneurship, illusion of control causes entrepreneurs to underestimate the embedded risk in the process of new venture creation. Apart from that, no major study has dealt with illusion of control in the field of entrepreneurship, despite its exceptional important outcomes.

**Status Quo**

Status quo is individuals’ preference for the current situation and state of affairs. People susceptible to this bias deem any change of the current affairs as loss. Status quo bias has been identified in various experiential studies (Samuelson and Zeckhauser, 1988). According to Shepherd et al (2003), experience in repeated decision making processes may be a contributor for this bias. Burmeister and Schade (2007) concluded that entrepreneurs are less prone to status quo than bankers. In general, status quo is a major decision making bias in the field of entrepreneurship as well as strategic management.

### 3. Method

In this research we adapted Grounded theory to access the real experience of an entrepreneur. So the emerging grounded theory approach was developed. This approach is known by the work of Glaser (1992) and design highlights analyzed data through open coding and Theoretical coding.

The main difference between Grounded theory and other qualitative research designs is that Grounded theory is an inductive method. In emerging grounded theory approach instead of testing a current theory, by adapting an inductive approach, we try to develop a theory. Concepts are emerged during the research and data collection via the constant comparative data analysis and researchers continued it until theoretical saturation. Glaser claimed that many meanings of the words created by the interviewees (Glaser, 1978; Glaser, 1992, Creswell, 2005 p.397).

For gathering data, Semi-structured interviews were applied and in this technique, we designed questions to gather information about the entrepreneur's decisions. We explored interviewees’ answers with more questions.

Iranian entrepreneurs were the subject of our research. Theoretical sampling was applied for choosing interviews (Eisenhardt, 1989). Our sampling was intentional and the focus was on the formulation of the theory so by adapting theoretical sampling we choose forms of data collections which provide usable text and images for theory development (Creswell, 2005, p405).
Theoretical sampling is a data collection process for theory developing whereby the analyst simultaneously gathers codes and analyzes data and decides which data to collect in future to improve his theory and where find them (Glaser & Strauss, 1967, p.45; Glaser, 1978, p.36). We continued interviews until data saturation was acquired. In the saturation stage, theory reaches such a coherence that total changes decrees more and more by increasing of the samples (Glaser & Strauss, 1967, p.65; Eisenhardt,1989, p.545).

4. Data Analysis Procedure

Coding is the basic technique for specifying the categories. The purpose of Coding is to facilitate the retrieval of data components. Code is the symbol or abbreviation that is used for the categorization of words or phrases. Coding is the accurate reading of data and breaking them into the smallest components (Strauss & Corbin, 1998, p. 60).

Open coding is the first step of data analysis in emerging grounded theory approach. After transcribing the interviews, we examined it to find substantive codes. Within open coding data were broken down into its smallest units and categories were explored.

By focusing on data we tried to extract the ideas and concepts in an inductive way. And this process helped us to focus on the respondents’ world and not to impose our own ideas as possible.

Theoretical coding occurs simultaneously with open coding, but as Glaser mentioned we “will focus relatively more on substantive coding when discovering codes within the data, and more on theoretical coding when theoretically sorting and integrating his memos” (Glaser, 1978, p. 56).

Theoretical codes are empty abstractions without substantive codes, (Glaser, p. 72). While within open coding data were divided into concepts and categories, theoretical coding re-encoded data back to each other, establishes new relationships between categories. At this stage concepts are related in a way that leads to theory formation (Glaser, 1992; Glaser & Holton, 2004; Glaser & Holton, 2005). For Reliability of our study we adapted some procedures. We used multiple coders and the finding show that the discrepancies between the coders were minimal. On the other hand we also selected disclosure categories from well-grounded relevant literature, and clearly deified them (Milne and Adler, 1999; Guthrie et al., 2003). For Validity of our study we reviewed relevant documents and studies about our topic to provide triangulation of thematic analysis. 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).

5. Research Findings

We continued interviews until after 20 interviews we reached saturation and no more concepts were added by new interviews. Table 1 shows demographic characteristics of our entrepreneurs. As it shows most of these entrepreneurs are male (95%) and only one person was female. 40% of our entrepreneurs are between 30-39 years old, 25% are between 40-49 years old and 20% are above 50 years old.

<table>
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<tr>
<th>Table 1: Demographic Characteristics</th>
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After the interview were transcribed, we read them and Codes were extracted without the interference of our assumptions. During open coding, data were broken into separate codes and categorizing continued until the best explanation for the data was achieved. By using open coding a lot of concepts were generated and frequently compared to find similarities and differences and this process continued until the concepts became available. Then the events were compared to generated categories to determine the properties of each category (see table 2) and we narrated the relationships:

<table>
<thead>
<tr>
<th>Categories</th>
<th>Sub Categories</th>
<th>Concepts</th>
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<tr>
<td>Personal factors</td>
<td>Previous Experience</td>
<td>Successful previous Experience</td>
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<td>Unsuccessful Previous Experience</td>
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<td>Self-Efficacy</td>
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<td>Internal locus of control</td>
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<td>contribute failures to factors beyond their control and</td>
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<td>Personal Optimism</td>
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<td>Hope In Future</td>
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<td>Risk-taking Propensity</td>
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<td>Positive Emotions</td>
<td>Assuming Vague and ambiguous situations positive</td>
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Table 2: Concepts and Categories
**Personal Factors**

Previous Experience, Self-Efficacy, Internal locus of control, Personal Optimism, Risk-taking Propensity and Positive Emotions Sub Categories were merged as Personal Factors which influence the decision making biases of the entrepreneurs.

- **Previous Experience**
  The following cues were extracted from interviews indicating Previous Experience as one of main factors influencing decision making biases in entrepreneurs.
  - Successful Experience
  - Unsuccessful Experience
  
  For example one of the interviewees said: “I have made a lot of decisions in my career and have gained adequate experience in this regard. Most of my decisions have been more or less correct; therefore I am inclined to rely on experience while making a decision.”.

- **Self-Efficacy**
  These concepts were extracted from interviews indicating Self-Efficacy as another factor influencing entrepreneurs’ decision making biases:
  - Belief In One's Ability
  - Knowledge About One’s Abilities
  - Rating himself above the average
  
  For example one of the interviewees mentioned: “I have encountered lots of entanglements in my business processes and to overcome them I had to rely on my judgment. I can say that I have always had belief in my abilities to make sound decisions.

- **Internal Locus of Control**
  Ascribing successes to one’s characteristics and contribute failures to factors beyond one’s control were the cues extracted from interview and indicating internal locus of control as one of factors influencing the decision making biases in entrepreneurs. For example, one entrepreneur said: “… Of course I have had some failures and setbacks in my previous activities. But now in retrospect I reckon that other factors beyond my control had the main roles in my failures.
The following cues were extracted from interviews indicating Personal Optimism as a factor influencing the decision making biases in entrepreneurs:

- Highlighting The Positive signs
- Neglecting the negative signs
- Having hope In Future

An interviewee said: “you must have an optimistic personality, because you will definitely encounter a lot of downfalls and problems. I am an optimist by nature and have remained optimistic in my whole career as an entrepreneur”.

**Risk-Taking Propensity**

Assuming Vague and ambiguous situations as positive and risk propensity were the concepts emerged from interviews and showing that Risk-taking Propensity is the other factor influencing the decision making biases of our entrepreneurs. For example one of our entrepreneurs said: “Our firm identified some lucrative opportunities. These were situations that could have made us a major contributor in the market. In order to make decision to exploit the identified opportunities we had to take some serious risks, given the market turbulence as well as the intensity of competition”.

**Positive Emotions**

The following concepts were merged as Positive Emotions which identified one of main factors influencing the decision making biases of entrepreneurs:

- Passion
- Joviality
- Happiness
- Enthusiasm
- Affection

For example one of our entrepreneurs mentioned:” I am inclined to make important decisions when I am happy or when I have received some good news. This makes me more bold and adamant to pursue my goals. When I feel sad or worried, it’s the other way around, meaning that I avoid to make any crucial decisions “.

**Environmental factor**

Environmental Pressure and Lack of Resources were merged as Environmental Factors influencing the decision making biases in entrepreneurs.

**Environmental Pressure**

The following cues were extracted from interviews indicating Environmental Pressure as one of factors influencing the decision making biases of our entrepreneurs.

- Ambiguity
- Uncertainty
- Complexity
- Novelty

For example one of the interviewees said:” Our firm deals with a lot of uncertainty, ambiguity and sudden change. In this situations I usually make decisions personally based on my experience and judgment and after making the decisions do not bother me with extra information and data. Because I deem them a source of hesitance. This attitude helps me consider my business environment under my control”.

65
Lack Of Resources

These concepts were extracted from interviews indicating Lack of Resources as another factor influencing entrepreneurs’ decision making biases:

- Lack of Capital
- Lack of Data

For example one of the interviewees said:” Especially in the beginning phases of my enterprise, my company had neither adequate experience nor sufficient staff to deal with all data and information, thus, I had to make most decisions based on my judgment, intuition and experience..

Organizational Factor

Limitations in information processing and Lack of decision-making procedures were merged as Organizational factor influencing the decision making biases in entrepreneurs.

Limitations In Information Processing

Time Pressure and Information Overload were the cues extracted from interview indicating Limitation in information process as one of factors influencing the decision making biases in entrepreneurs. For example, one entrepreneur said: “I remember in the process of new product development we had to deal with myriad pieces of information, the bulk of information was so massive that we felt ourselves helpless. Under that situation we made some fatal mistakes in estimating the needed time to finish some projects. The consequence was harmful for our business growth”.

Lack of Decision-Making Procedures

The following concepts were merged as Lack of decision-making procedure which was identified as one of main factors influencing the decision making biases in entrepreneurs:

- Not having any guide to make decisions
- Not having access to the records of problem
- Not having access to previous operations

For example, one interviewee said: “We didn’t follow any specific decision making styles. Is it really possible anyway? I have not thought of that. I make all decisions personally. Because in this field of business every decision is different from others”.

6. Discussion

Entrepreneurial decision making biases are influential factors in most major entrepreneurship and business related processes. Entrepreneurs’ decisions from new venture decisions to exit decisions are under the influence of these biases. A lot of factors influence the genesis of biases among entrepreneurs. Coming to the conclusion that there is a huge gap regarding these factors, this study was conducted by interviewing 20 Iranian entrepreneurs and taking a grounded theory approach to fill this gap. According to our results, a combination of individual factors (experience, self-efficacy, internal locus of control, optimism, risk taking propensity and positive emotions) environmental factors (environmental pressure, lack of resources) and organizational factors (limitation in information processing and lack of decision making procedures) contribute to decision making biases among entrepreneurs. Our results are consistent with main researches in this regard which have identified individual factors as the main contributors to decision making biases among entrepreneurs. In the following we render our implications for future researches.

Implications for Future Researches

- We strongly propose that future researches try to categorize the positive as well as negative effects of decision making biases among entrepreneurs. This could be a fantastic progress in this regard.
Almost all the interviewees in this study were male. In the future studies it could be helpful to study biases and their causes and effects in female entrepreneurs, as well.

Virtually all the interviewees in the current study had to deal with marketing and marketing related topics in their decisions, but there seems to be a huge and important gap about the effects of biases on entrepreneurs’ marketing decisions. Most of the relevant papers have concentrated on the field of behavioral finance. Future studies need to fill this gap.

The exact relationship between heuristics and biases and their reciprocal influence have been neglected in the past entrepreneurship-related studies. It is not an exaggeration to say that there is no relevant, comprehensive study about the relationship of heuristics and biases and their mutual influences in the field of entrepreneurship. Future studies must fill this important vacuum.

References


